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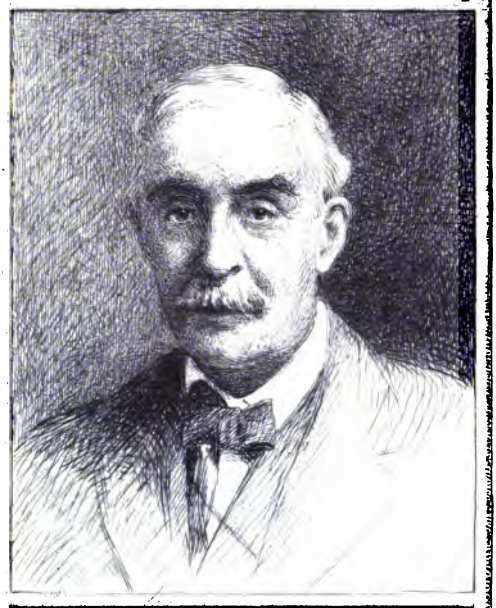

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NATURAL THEOLOGY

NATURAL THEOLOGY

The Gifford Lectures

DELIVERED BEFORE THE UNIVERSITY OF EDINBURGH IN 1891

BY

PROF. SIR G. G. STOKES, BART., M.P.

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GIFFORD LECTURES

LECTURE I

Gifford Lectureship—Modes of progress in Natural Theology—Progress in Natural Science from laws to theories—Idea of causation, and limitation of its scientific investigation—Conception of a Designing Mind behind the order of nature—Qualification of the idea of personality as applicable to the First Cause—Evasion of the idea of design—Man's free will implies the possession of will as belonging to the First Cause—Impossibilities in the nature of things—Difficulties as to the existence of moral and physical evil.

FROM the words of the bequest by which this Lectureship was established, it would seem that the idea of the Founder was that it was possible to establish the existence of a God, and to frame a perfect system of rules of duty, simply by the exercise of man's intellectual powers, exerted in a manner perfectly analogous to that by which the physical sciences have attained their present development. Difficult as the task might be, it was hoped that with due and liberal encouragement it might yet be accomplished.

Whether it is possible that the noble object of the

Founder can be attained precisely in the manner indicated may well be doubted. Still, I look on it as the duty of the Lecturer to keep that end steadily in view, endeavouring to carry out the spirit of the instructions of the Founder, even though he may not rigidly adhere to the letter.

In the natural sciences progress may be made in two ways: one by deducing results from ascertained principles, the other by framing hypotheses suggested no matter how, though usually by some observed phenomenon, and trying whether they will so link together observed phenomena as to force on us a conviction of their truth.

For example, we may start with the ascertained principles of voltaic electricity and electro-magnetism, and deduce therefrom the action of an electro-magnetic engine, and thus place the efficiency of such machines on a truly scientific basis, and construct them with a view to securing certain predetermined objects—objects which otherwise, if attained at all, could only in all probability have been arrived at after a long and laborious series of trials conducted in a more or less haphazard fashion.

Again, we may study the phenomena of the colours of thin plates, or of the patterns produced when light from a very bright and small source passes through minute apertures, etc., and ascend from these phenomena to a conception of light as consisting of undu-

lations; and finally, by tracing the consequences of that conception and finding how completely they fit in with what we observe, arrive at a full conviction that light is really of the nature supposed.

In a similar way we may conceive that progress may be made in natural theology in either of two ways: by deducing consequences from what we know or observe, or by assuming *for trial* the truth of a statement made on whatever authority it may be, and then examining whether the supposition of its truth so falls in with such knowledge as we possess, or such phenomena as we observe, as to lead us to a conviction that the statement does indeed express the truth. It may be that the statement comes from a source which professes to be a revelation made from God to man. But such an employment of it as I have just described is strictly analogous to our procedure in the study of physical science, and does not therefore seem to be precluded by the terms of the foundation of this lectureship.

At the very basis of natural theology, as the very name implies, lies the question of the existence of a God. Whence arises the belief in the existence of God? Is it (1) intuitive, or (2) handed down by tradition from some primeval revelation, or (3) arrived at by reasoning from what we observe in nature or perceive in ourselves?

The feeling of right and wrong, the feeling ex-

pressed by the words "I ought" and "I ought not," would seem to be intuitive. Of course as regards the things which are deemed to be right or wrong there is room for any amount of training, and this training may be erroneous. But the question relates, not to the objects towards which the feeling is exercised, but to the feeling itself; is it innate, or is it simply the result of training?

It is very difficult for us, placed as we have been from earliest childhood in a condition of training, to say what would have been our feelings had such training never taken place. But the feeling of right and wrong is by no means confined to civilised nations; it may well be doubted whether there is any nation so barbarous that those belonging to it are destitute of such a feeling. This feeling of obligation must not be confounded with a mere fear or desire of consequences. If I refrain from giving myself a smart blow with a switch, which I am free to do or not to do, it is not that I feel that I ought not, but that I do not like the pain which I know would ensue. On the other hand, the feeling of obligation may exist quite irrespective of the thought of consequences to ourselves. It is hard to believe that a feeling so general—might we not say universal?—can be merely a result of training; it looks rather like something intuitive. But we cannot entertain a feeling of obligation towards a mere law of nature;

it implies the recognition of something of the nature of a being; the recognition at least of some "power above ourselves which makes for righteousness." To this extent it would seem as if the recognition of a God were intuitive. It is true there are some who call themselves atheists, but what they reject in adopting this name is probably a complex idea involving far more than this.

If belief in the existence of a God were merely the effect of tradition, originating in an assumed revelation, whatever may have been the case with nations possessing some amount of culture, it is hard to believe that it could have survived in barbarous races for so many generations; and yet there appears to be a very general belief in the existence, if not of one supreme being, yet at any rate of beings higher than man. Even if we suppose such a belief to be a corrupted residuum of a primitive revelation, it is hard to account for its preservation unless it fell in with something, tended to meet some want, in the human mind; and this is not very different from saying that to a certain extent the idea is intuitive.

The recognition of the existence of God derived from the observation of nature seems to require a further exercise of the reasoning powers. It is very difficult to divest ourselves in imagination of the effect of early training, and approach the subject as conceivably we might have done if, on this point, we

had received no instruction. Perhaps it will be best to endeavour to imagine how the thing might present itself to the mind of a child on growing up.

The dawning intelligence of a little child shows him how dependent he is for his wants on others: on his parents, his nurse, those about him. He recognises many things as done by them, and is apt to get an exaggerated notion of what they can do. He soon learns that their powers are more limited. He finds that there are processes going on around him which no human power can effect, leading to results which, though most important to his well-being, and that of his fellows, are such as it is impossible for man to bring about. Some of these bear on the face of them, or at least seem to do so, unmistakable evidence of design. Take, for example, the structure of the eye. The more it is examined, anatomically and physically, the more forcibly is one impressed with the conviction that it was really designed to do that which in fact it does accomplish. Our supposed infant, now come to man's estate, being of a reflecting turn of mind, is led to perceive that there must be some power above that of man, directed by will, through the operation of which these results were brought about. The idea of will involves that of personality. We may contemplate results as brought about through the operation of natural laws; for example, the change in

the seasons is brought about by the motion of the earth in its orbit combined with its motion of rotation round its own axis, and these again are maintained through the laws of motion combined with the law of gravitation. We may subject these phenomena, and the still more complicated perturbations, as they are called, of the motions of the moon, to mathematical analysis; and when we have succeeded in showing that some apparent anomaly in the motion is a necessary result of these laws, we are in the habit of saying that we have *explained* the apparent anomaly, or perhaps that we have *referred it to its cause*. But in *this* sense of the word "cause" there is evidently no room for the idea of will. It would be absurd to say that gravitation chooses to make a stone which had been held in the hand and is let go fall to the earth. If we say that a ray of light in passing from one point to another in a medium of continuously varying density *chooses* the quickest path, we merely use a metaphorical form of expression, for the sake of avoiding circumlocution. Will, design, implies mind, and mind as we know it is an essentially personal attribute. In this sense we attribute personality to the First Cause. But in speaking of Him as a Personal God, we must beware of falling into anthropomorphism. Personality as we know it in ourselves is subject to limitations of time and space; and if we venture to speak of God

as personal (in a sense, it may be well to notice, quite different from that in which the term "Person" is used in another branch of theology), we must beware of introducing along with the term those ideas of limitation to which personality, as we know it in ourselves, is subject.

As this is an important point, it may be well to dwell on it at greater length.

The general process by which the boundaries of science are from time to time enlarged is of this nature. First, we endeavour to classify the multitudinous facts of direct observation, and group them under a comparatively small number of general statements which we call laws. These are of an empirical nature, not carrying with them the idea of causation. They prepare, however, the way for a possible future theory which may embrace them all. When the primary empirical laws are shown to be consequences of a hypothesis which at the same time explains other phenomena quite different, and leads to no conclusion at variance with observation, we arrive at last at a conviction more or less firm that what was at first a hypothesis assumed for trial is indeed a law of nature. And now the idea of causation enters the mind; we speak of this ascertained law of nature, or at least law which we believe to have been ascertained, and take as such, as the *cause* of the phenomena with the consideration of which we started.

To illustrate my meaning, let me take a concrete example. The apparent motions of the planets among the fixed stars must have been known from prehistoric times, and in fact it is from that that the very name "planet" is derived. Later on astronomers determined with accuracy their places from time to time among the fixed stars. The assemblage of observations, each specifying the place of such a planet at such a time, forms the "multitudinous facts" which I have spoken of above. Presently Kepler succeeded, after a most laborious series of trials, in discovering three very simple laws according to which the motions of the planets take place. The previously observed places of the planets, which for aught we knew might be looked on as arbitrary, save of course that for the same planet they formed a continuous series of some kind, were now linked together in such a manner that they were capable of being expressed for any time when once the numerical values of a few constants were known; and not only so, but the places could be predicted beforehand, which previously could only be done to a small extent by a process analogous to that of prolonging for a little way an unknown curve at the end of a drawn portion of it. Still, these laws do not carry with them the idea of causation; they merely represent systematised results of observation. We feel that we cannot rest satisfied with these laws; we

want to refer them to something else, of which they may be regarded as consequences. Presently Newton arises, and shows that these laws are all consequences of an assumed universal gravitation; of a force varying according to the very simple laws of direct proportionality to the mass of the attracting body and inverse to the square of the distance.

We have now advanced from mere empirical laws to a theory. We are led to recognise a property in matter whereby it attracts other matter at a distance, and to refer the planetary motions to a force the same as that whereby an apple falls to the ground, and our own bodies are retained firmly on the seats on which we sit. Before such a theory is finally accepted, it is requisite that we should examine it into its minute consequences. With reference, for example, to the planetary motions, it is a consequence of the theory that Kepler's laws are only extremely nearly true; there ought to be minute deviations from those laws, depending on the gravitation of the planets towards one another. The assumed theory is found to satisfy this rigorous test, and thus we become convinced that we have indeed arrived at a true explanation of the phenomena.

In thus referring the motions of the planets in their orbits to a general property of matter, that of gravitation, we introduce an idea of causation; we speak of the attraction of gravitation as the

cause of the retention of the planets in their orbits.

Yet from one point of view the two things seem to stand upon the same footing. In the one case, we have a few simple laws which express completely the motions of the planets (I here suppose the perturbations of the motion unknown and unsuspected); in the other case, we have a still simpler law which not only explains the laws of Kepler but also the planetary perturbations and other phenomena having, at first sight, no connection with the planetary motions. Do the two cases differ more than in degree? Is there any reason why we should think of causation in the one case more than in the other?

The difference seems to me to be this. In the case of gravitation, we believe that we have arrived at a knowledge of a general property of matter, which we are content to regard as in a certain sense self-existent; we do not go behind it. The law of gravitation is so simple that we hardly think of it as requiring to be accounted for. But in the case of Kepler's laws we have merely a succinct expression for observed facts, not connected with anything outside the immediate phenomena which are thus summed up. We cannot in any way regard them as expressing laws of nature; we cannot help feeling that they themselves require explanation.

So long as we are content to regard the simple

laws (such, for example, as the law of gravitation) which express the highest generalisations that we have attained to or expect to be able to attain to as postulates which we refuse to look behind; to which we mentally attribute a sort of self-existence; the idea of design in the achievement of the results is excluded; the results follow of necessity from the postulates just as the propositions of geometry follow from the fundamental axioms. And the domain of natural science does not extend beyond, on the one hand, the discovery of these ultimate laws in which we are content to rest, and on the other, the following of them out into their consequences. Yet, when we think about it, we cannot help feeling that these ultimate laws, as we have been regarding them, are not really such; that they themselves need to be accounted for, whether we do or do not see any prospect of accounting for them by a process analogous to that by which they were themselves arrived at. In the former case, we may entertain a hope of reaching by the methods of science to some still higher generalisation; of arriving at some law or laws yet more elementary, and of which the laws hitherto considered may be regarded as results. And even in cases where we see no immediate prospect of arriving at any such higher generalisation there may be indications that something of the kind exists. Take, for example, the law of gravitation. We com-

monly regard this as an ultimate property of matter which we do not attempt to go behind. Yet there is one thing about it which is of a nature to lead us very strongly to suspect that it is itself a consequence of something else. We can conceive of and define mass, if necessary we could even measure it, quite irrespective of weight; in fact, we could do so even if we knew nothing of weight or gravitation. Now the force by which, in consequence of gravitation, two bodies mutually attract each other (though it will be convenient to regard one body as attracting and the other as attracted) is subject to this remarkable law, that it is proportional, other circumstances being the same, simply to the mass of the attracted body. If the attracting body be the earth, it comes simply to this, that weight is a measure of mass. So long as the attracted body is of given nature, gold suppose, we might imagine two such bodies divided into small portions just alike, and it comes merely to this, that the particles do not screen one another from the attracting body. But if the attracted body be in one case suppose gold, and in another marble, we have no reason *a priori* for supposing that the weights would be equal when the masses were equal; for our chemical knowledge does not enable us to say that all chemical substances are ultimately composed of matter of the same kind. The fact that two bodies may be compared either as to their relative masses or

their relative weights, and that these two modes of comparison lead to exactly the same ratio, though we cannot tell why, leads us to suspect that gravity itself may be dependent on some physical process which might conceivably at some day be understood, and which, if it were, would enable us to explain gravity as gravity enables us to explain Kepler's laws. In other cases we do not seem to have even a glimmer of an indication of a physical cause which we might hope to be able to make out; take, for example, the question of the origin of life on the globe on which we live. And yet in this case quite as much as, perhaps even more distinctly than in the other, we feel the want of a cause of some kind for that which exists.

In every case when we have ascended as far as we are able from phenomena to what we call their causes, we are at last brought up by reaching a stage when we can proceed no farther; when we are obliged to take the highest laws that we have arrived at as postulates, and reason deductively from them. And yet we do not feel that those highest laws *must* be as they are; we feel that they themselves require something to account for them.

As I have said, the deduction of results from the final postulates at which we arrive when we treat the observed phenomena as presenting problems to be solved by referring them to purely physical causes excludes the idea of design; we do not think of our

highest laws as capable of intention. And yet the study of nature forcibly impresses us with the idea of design lying somewhere.

This leads us to the conception of a designing mind lying behind the furthest causes, of the nature of what are called second causes, that we are able to attain to, or that we could even conceivably attain to by purely scientific investigation.

Let me illustrate my meaning by analogy to a thing we are very familiar with. Suppose a civilised intelligent man came from a country where there was no such thing known or heard of as a timepiece of any kind. Suppose he found a watch which he was not at liberty to open for examination. All he could observe would be the motion of the hands. He would notice that the spaces passed over corresponded to the interval from sunset to sunset, the same or very nearly so from one day to another; and for shorter intervals he would find that while he was executing a certain task capable of being repeated in almost exactly the same way, suppose walking over a certain distance at his normal rate, the hands would move through the same angle one time as another. By such observations he would learn that the motion of the hands gave a measure of time, and he would have no hesitation in saying that the watch had been designed for this object, though how it was brought about he would not know. Now, suppose

the watch partially opened, so that he was able to see a portion of the works. He would perceive that the motion of the hands was governed by that of certain wheels, which were in gear with one another in a way that he could follow. He might see even more, and find that there was a spring which actuated the wheels. He would regard the motion of the hands as evolved from that of the wheels, and the motion of the wheels again as evolved from the uncoiling of a spring. He might further find out the balance wheel, and he would see how, by making each step in the motion of the train of wheels depend, as for the time in which it took place, on the performance of an act always the same, the motion of the hands came to be a measure of the time elapsed. But though he would have accounted for the motion of the hands, and the proportionality of the motion to the time elapsed, by evolution from something lying farther back, his original idea that the whole thing was designed to serve for the measurement of time would not be in the least degree weakened. The motion of the hands, it is true, could not be other than it is if we suppose the system of wheels, the mainspring, the balance wheel given; but he would see that these were constructed and put into their places with a view to the function which he originally discovered that the instrument discharged.

In a similar way the evidence of design which we

find in nature is not destroyed by showing that what we deemed to be a designed result is really an inevitable consequence of something else, and that again an inevitable consequence of something still farther back, and so on till we can proceed no farther. It is only when we attribute a sort of self-existence to those second causes that are the farthest we have been able to reach, refusing to look behind them, or else when we assume that the chain of causation which we have been able to trace a certain way backward *must* be capable of *indefinite* continuation in the same sort of direction by methods of the same character, that we eliminate design from our thoughts. The former is arbitrarily to shut our eyes to all that lies outside the ken of science; the latter is to presume upon our ignorance, and affirm that we can as it were draw a complete curve from a limited portion of it which alone is given to us.

Nevertheless it is, I think, the case that we are not so overwhelmingly convinced of design through a study of nature as the man would be in the supposed case of the watch. Why is this? It arises, I think, from the circumstance that in the case of the watch the supposed civilised observer sees things which, though he may never have seen or heard of them before, are nevertheless analogous to what he or his fellow-men can make; whereas, in the case of the phenomena presented to us by nature, when we have

referred them to their causes, and so on as far back as we can go, we find no power in ourselves to bring about the postulates from which an explanation of the observed phenomena was deduced, or to do anything at all analogous.

But that there should be such a difference in the readiness with which a conviction of design is brought about need not surprise us; that is only what might have been expected from our acquaintance with the mode of working of our fellow-creatures, and ignorance of the mode of working of a Being so immeasurably above ourselves as He must be by whom these things were designed.

When we have arrived at the conception of will, design, as belonging to the First Cause, we are apt to form a conception of a personality subject to limitations such as belong to personality as we know it in ourselves. Perhaps some conceptions which we acquire through the study of science may aid us in the endeavour to form some sort of idea, however imperfect, of a personality free from such restrictions.

Take some general natural law at which we have arrived, suppose the law of gravitation. We conceive of it as belonging to matter, however remote, as not only retaining the moon in her orbit round the earth, and the planets in their orbits round the sun, but as regulating the relative motions of the components of a double star, situated though it be at a distance which

is so great that the very lowest value it is permissible to assign to it is such as to require aid from illustrations in order that we may form any adequate conception of it. In short, we think of this law as perfectly general as regards space; as irrespective altogether of locality. May it not be possible that the personality which we ought to attribute to the First Cause is something equally exempt from the limitations of locality?

I have mentioned one way in which the idea of design may be evaded, but there is another which ought not to be passed by without notice, though the progress of science leads us to discard it. In treating of design, Paley supposes the case of a man walking on a heath, and finding a stone and asking himself how it came to be there. The idea might possibly occur to him that it had always been there; that having been there from a past eternity its presence need not be accounted for. He contrasts with this the case of a man similarly meeting with a watch. In this case, as he says, the plain indication of design precludes the idea that it had lain there for ever. The two ideas, on the one hand of design, on the other of continuance from a past eternity, seem to be incompatible. But it is conceivable that with reference to something in nature which seems to indicate design, the idea might be formed that it had been so from a past eternity. Suppose a man to know

nothing of geology or history or antiquities, and to trace backwards the succession of the human race. As he sees nothing to limit the succession in the future, so, it might occur to him, there is no occasion to limit it in the past. Why may we not suppose that the succession of father and son, mother and child, which we see going on now, may have been so always? Why is there any occasion to seek for an origin of the race at all? The limbs, it is true, look as if they were intended to perform the functions which we see them accomplish, but if they never had a beginning (I speak, of course, with reference to the race, not the individual), there is no room for saying that they were designed to be what they are.

Whether this argument is really valid, I shall not stop to inquire, for, as I have said, the progress of science enables us to negative such a supposition, not merely in such a case as I have supposed, where nobody would imagine such a thing, but even in cases in which at first sight the supposition might seem plausible enough. Take, for example, the motions of the bodies of the solar system. By mathematical calculation we can predict for years beforehand what their places will be, and in a similar manner we can calculate what they were years ago. What is to bring us to a stop? Why may we not suppose that they have been going on just as they are now from a past eternity?

We now, however, know that there are actions going on, such for example as tidal friction, which involve a consumption of energy, involve, so to speak, a continual expenditure of capital; and as this is not replaced, vast as the store at the bank may be, it must be exhausted in time, and could not therefore have lasted through a past eternity. Hence a supposed indefinite periodicity does not help us any more than the simplicity of what I have called ultimate physical postulates to dispense with a First Cause of an ultra-scientific nature.

The reluctance which appears to be sometimes felt, especially by those who have mainly attended to the study of natural science, to admit any cause other than those second causes which lie within the province of science, appears to be due partly to not attending to the fact that the study of nature itself presents us with problems which have not the slightest appearance of being capable of solution in any such way, partly to the idea that anything of a personal nature necessarily involves limitations which are felt to be incompatible with the grandeur of scale of what we call nature. But in this, it seems to me, men fall into anthropomorphism in the very attempt to avoid it. The idea of will is discarded as being anthropomorphic. But why should it be supposed to be anthropomorphic? Is it not that we associate it in our ideas with limitations such as those to which

our own wills are subject? If it be said we cannot otherwise conceive of it, in one sense this is true and in one sense it is not. It is a very old question that is expressed in the words, Canst thou by searching find out God; canst thou know the Almighty to perfection? We are not to expect with our finite minds adequately to conceive of the infinite. But then we are not to attempt in our conceptions to limit the infinite by the finite, but rather to form the highest conceptions that we can through our knowledge of the finite, and to regard them as still inadequate.

Let me endeavour to apply these principles to a subject of great importance in itself, which it seems to me there is nothing in the directions of the Founder to hinder me from entering upon, and treating to the extent to which I mean to limit myself.

I assume that we will admit that in the existence of mankind, with all the powers mental as well as bodily which man possesses, will, design, is involved. It matters not by what secondary processes the growth of the body, the development of the mental powers, may have been brought about. If this be admitted, it will be absurd to deny to the creative will, powers which the created being is found to possess.

Now there is one power of the possession of which we are innately conscious; I refer to free will. I

feel that I have the option of moving my hand to the right or to the left, and similarly with regard to innumerable other actions. The words of every language testify to the consciousness of such a power. Of course I may wish to do a thing that I have not the power to do; but that is a different matter altogether. A thief might wish to carry away on his shoulder an ingot of gold worth £50,000, but he would not be able. Such an inability does not in the least degree militate against our consciousness of free will. We cannot deny to man's Maker this power which we find man himself possesses.

Now we know very well that a man may in general act uniformly according to a certain rule, and yet for a special reason may on a particular occasion act quite differently. We cannot refuse to admit the possibility of something analogous taking place as regards the action of the Supreme Being. If we think of the laws of nature as self-existent and uncaused, then we cannot admit any deviation from them. But if we think of them as designed by a Supreme Will, then we must allow the possibility of their being on some particular occasion suspended. Nor is it even necessary, in order that some result out of the ordinary course of nature should be brought about, that they should even be suspended; it may be that some different law is brought into action whereby the result in question is brought

about without any suspension whatsoever of the laws by which the ordinary course of nature is regulated. I will endeavour to illustrate my meaning by reference to something with which we are familiar. Suppose that a clock with an iron pendulum had long been observed and rated. Its rate, we know, is determined by the laws of motion and by gravitation. Suppose that on one occasion it went much faster for an hour or two, and then resumed its usual rate. It may have been that some one designedly put a powerful magnet under it, which after a time was taken away again. The acceleration of rate was here produced, not by any suspension of the laws of motion, or of gravitation, but by bringing into play for a time a special force which left the laws of motion and of gravitation perfectly intact, and yet brought about the result that we have supposed to have been observed.

It will probably have been perceived that in what I have just been saying I have had in view the question of the abstract possibility of what are called miracles. This is a question the consideration of which, as it seems to me, belongs quite properly to the subject of natural theology. Admit the existence of a God, of a personal God, and the possibility of miracle follows at once. If the laws of nature are carried on in accordance with His will, He who willed them may will their suspension. And if any

difficulty should be felt as to their suspension, we are not even obliged to suppose that they have been suspended; it may be that the event which we call a miracle was brought about, not by any suspension of the laws in ordinary operation, but by the superaddition of something not ordinarily in operation, or if in operation, of such a nature that its operation is not perceived.

Among the subjects suggested by the Founder as being such as the lecturer might discuss, one is, Whether God is under any or what limitations. This is one, the consideration of which seems to me by no means useless. We apply to God the epithet Almighty, and we are apt to think it derogatory to His power to imagine that there could be any possible obstacle to the accomplishment of anything that we can conceive.

But is not such an assumption, notwithstanding the appearance of humility that it presents, in reality a disguised form of self-assertion, as if we knew so well what was or was not possible in the nature of things that we can affirm that nothing of that kind can stand in the way of the accomplishment of what seemed to us a desirable object?

Let me take an illustration from what falls within human knowledge. Suppose that a man had a great number of coins, all exactly alike, and was desirous of packing them in drawers too shallow to allow one

coin to be put over another, but so broad and wide in relation to the diameters of the coins, that they might practically be deemed to extend infinitely far in lateral directions; and suppose that the man was desirous of packing them as close as possible. We can imagine him finding out that the closest mode of packing was that in which each coin was surrounded by six others, which touched it and one another. Suppose now that instead of coins he had a vast number of equal spheres which he was desirous of packing in boxes, the three edges of which were all very large compared with the diameter of a sphere. We may imagine him giving directions to a packer so to pack them that each sphere shall be in the middle of a layer or shell of spheres, each of which touches it, while at the same time the spheres of the layer touch one another in such a manner that each sphere in the layer is surrounded by six spheres which touch it and one another in a manner perfectly analogous to that of the coins in the preceding example. We may suppose that on examining the mode in which the spheres were packed he was dissatisfied with the work of the packer, because the conditions he laid down were not fulfilled. It is likely enough that from the analogy of the coins the owner of the balls might think that the way mentioned above was the proper way in which to pack the balls.

But we know that the proposed task involves a geometrical impossibility, and the reason why the employer desired the packer to do the task was simply that he did not know enough of geometry to perceive that it was impossible.

Now it seems to me that some of the difficulties which are felt about reconciling the course of nature with belief in its government by a supreme and benevolent Being, which arise from the fact of the existence of much pain and suffering even among the lower animals that we have no reason for supposing are endowed with a moral sense, so as to be accountable for their actions, may very well arise from presuming upon our most imperfect knowledge. Take, for instance, the existence of pain, or, still further to particularise, of pain as brought about by the preying of one animal on another. We are disposed to commiserate the victim; the thought perhaps arises, Can it be true that all this is brought about through the design of a Being of infinite power and boundless benevolence? But what do we mean by infinite power? Is it the power of doing anything, of effecting any object which we can conceive in our minds? If this is what we mean, then indeed we may well be in perplexity. There may be obstacles in the nature of things—obstacles of the nature of geometrical impossibilities—which stand in the way of the accomplishment of what we had conceived as desir-

able, but obstacles of the existence of which we, in our ignorance, had not the slightest conception. So long as we are dealing with the works of man, or with works analogous to such as man can accomplish, the possibilities and limitations of possibility are in some measure known to us. But when we are dealing with the works of God, with the whole constitution of nature, we enter on a region lying far beyond what we can explore. It is absolutely impossible for us in such a case to say what is or what is not an impossibility in the nature of things; what apparently desirable end could or what could not be attained without the sacrifice of some object of still greater importance.

In considering this subject hitherto, I have left out of account the so-called rational creation, and confined myself to the lower animals. I say *so-called*, because I do not wish to deny the existence of a certain amount of reason in some of the lower animals; if it be not reason, at any rate it looks very like it. But I do not think we have evidence in them of the existence of a sense of duty, of obligation; of obligation as distinguished from desire or fear of acting or not acting in a particular manner. Hence, in considering the evils to which mankind is or may be exposed, one difficulty enters in over and above those which belong to him only as they belong to the lower animals. Man is endowed with the

sense of right or wrong; and a great deal of the evils which men suffer arise from their acting in a manner contrary to that in which they feel that they ought to act; thereby it may be entailing misery not only on themselves, but also, and even it may be in the first instance, on others who are innocent of participation in their wrong-doing. Now all this class of evils would be avoided if all men would only act always in accordance with what is right. The question then arises, If there be no limitation to the power of the Supreme Being, and if He desires the happiness of His creatures, why should not man have been so constituted as always to act rightly? In that case there might still have been some suffering belonging to his animal nature just as there is in the case of the lower animals; but at least those dire evils which arise from wrong-doing would have been avoided.

Now it seems that there are only two conceivable alternatives as to what might have been; either man must have been endowed with a free will, capable of acting in accordance with the will of God, but also capable of acting in opposition thereto, or else he must have been made a sort of machine, incapable of acting otherwise than in accordance with the course laid down for him. On the latter plan he could not arrive at the dignity of a being always doing right, though he had the power of doing wrong; always acting

in accordance with the will of God, though he had the power of acting in opposition to it. This is clearly a higher state than that of a mere conscious machine. But the power of doing right from choice involves the power of doing wrong; and we can hardly conceive that millions and millions of rational creatures, each endowed with this power of choice, should each of them and always exercise that power in a right direction. Such a supposition seems almost a contradiction in terms. Even if the probability were very great that an individual taken at random, on an occasion taken at random, would exercise that choice in the right direction, still the chance that that would always be so is utterly infinitesimal. I speak here of chance, as I am obliged to do in endeavouring to express my ideas, but I freely allow that it is only a refuge for our ignorance; there can be no chance to perfect knowledge. Now even without going beyond the bounds of natural theology it is readily conceivable that the superiority of the state of those who act aright, though they have the power of acting wrongly, to that of mere conscious machines, may outweigh the disadvantages of free will arising from the evil consequences of its abuse. Still, the difficulty remains a formidable one so long as we are confined to natural theology; for on the one hand the ideal condition of a perfect fulfilment of duty is not realised even in the case of good men,

and on the other the evils arising from lawlessness are very great. But when from natural theology we pass on to revealed religion the difficulty is, as I believe, if not wholly removed, at any rate immensely lightened. I could fain enlarge on this topic, but I do not consider that it would be in accordance with the terms of the Gifford Foundation that I should do so.

In this introductory lecture I have touched in a rather cursory manner on a variety of topics, some of them deserving a much fuller treatment. In some of the following lectures I propose to take up again some of these subjects, and treat them, one at a time, in fuller detail.

It appears to have been the Founder's idea that it was possible to establish a complete system of natural theology on a purely scientific basis. If I may conjecture from the terms of the will the direction in which he would have looked for its establishment, I should suppose that it was that of metaphysics. My own turn of mind is not in that direction; and if I had thought the Founder's object feasible I should hardly have felt myself justified in undertaking these lectures, but thought that I ought to leave it to some one better qualified than myself to undertake the task. As the matter stands, I think it desirable that men of very different lines of

study should contribute what they can towards carrying out, if not exactly the Founder's object, yet something as nearly allied to it as the nature of the case allows. My own studies have lain chiefly in the direction of mathematics and physics, and I have drawn upon them for illustrations of my meaning, I hope not so much so as to render myself unintelligible to a general audience.

LECTURE II

Possible evolution of the solar system—Bearing of the theory on the argument for design—Evidence of design in the structure of animals—Darwinian theory—Its bearing on the argument—Difficulties introduced by extreme views—Meaning and legitimate use of evolution—Enlargement of ideas as to the personality of God compatible with belief in His care for individuals—Alienation produced by sin—Theory of prayer.

ONE of the strongest arguments for the existence of a personal framer of the universe, in the sense in which the word "personal" has been explained in my opening lecture, is that derived from the evidence, or at least apparent evidence, of design which so frequently presents itself in our examination of nature, more especially of living beings and their relation to one another and to inanimate nature. But as in recent times speculations have arisen which seem to weaken the force of what at one time was thought so conclusive, it will be proper to enter into this subject in some detail.

Let us first consider the structure of the solar system, and more especially that of the earth on which we live. We find it provided with an atmo-

sphere which is essential to the carrying on of life as we know it. Its rotation about its axis in the moderate time of twenty-four hours enables the greater part of it to receive periodically the radiation from the sun, without which life, as we know it, could not exist; and at the same time the period is not so long that the tropical regions and large portions both north and south of them would get alternately baked up and frozen through the effect of radiation. The moderate inclination of the axis of rotation to the plane of the orbit supplies us with the variety of seasons, without that excessive and long-continued heat, alternating with an equally excessive and long-continued cold, which would take place over a very large portion of the surface if the axis of rotation had been inclined at a small angle only to the plane of the orbit.

Again, the arrangement of the solar system involves a central sun of vast size and at an enormous temperature. Utterly unfitted (as we have every reason to suppose) itself to be a habitation of living beings, it not only by its gravitation keeps the planets in their orbits, but affords at the same time a store of radiant energy so vast that it would require ages and ages to exhaust it. This radiant energy is absolutely essential to the maintenance of life as we know it upon earth; in how many ways essential is perhaps hardly thought of except by those who have made a special

study of physical science. On this subject, perhaps, I may be allowed, without the charge of egotism, to refer to some lectures which I delivered a few years ago at Aberdeen, in which I endeavoured to point out a variety of ways in which light, in the widest sense of the word, is essential to the maintenance of life upon the earth. Here, then, we have an arrangement admirably adapted to maintain life upon the earth, and, very probably, upon others of the planets. We might well suppose that the structure was framed *with a view to* this maintenance.

But the inquiry arises, May we not look on the present condition of the solar system as *evolved* from a simpler condition, under the action of just the same laws of matter as those we meet with in our study of physical science? The geological study of the structure of the earth, its figure, and analogies, or at least apparent analogies, that we meet with in the telescopic scrutiny of the heavens, lead us to think that in all probability the earth on which we live was originally in a molten condition, utterly unfit for the habitation of living creatures, but from which it subsequently cooled down. And if we speculate still further back, we are led to attribute the heat of fusion to the condensation of matter diffused over a far larger space, and brought together by the mutual gravitation of its parts; whether it be that that diffused matter existed in the form of a gas, which

was subsequently condensed, or of small discrete portions of solid matter, which gradually came together by their mutual attraction, and having originally been moving in all sorts of ways, produced this great heat required, by means of their repeated collisions. And this process, long since ceased as regards the earth, may still be going on in the central body of our system.

Now if we take as an initial state that in which matter is spread over space, be it in the form of a gas or in that of a vast number of small masses, it is conceivable that the condition of things which we find in our solar system might have been brought about simply by the operation of the known laws of motion and of gravitation. By an "initial state" is here meant merely a conceivably earlier state which we do not in our speculations go behind. For suppose space filled, whether continuously, or discontinuously at intervals, with matter distributed with a sort of very rough approximation to uniformity, and having motion varying from region to region, but on the whole having in a given region roughly a motion of translation and a motion of rotation, which dominate over the individual motions which differ from this. Then it seems evident that it would tend to collect and condense in patches, the matter of each patch having very roughly the general character of a motion of translation and a motion of rotation. As

the condensation very slowly went on, the general tendency would be for the matter mostly to collect into the neighbourhood of a centre, or in some cases it might be into two or more centres, leaving behind portions of matter at different distances, which, being comparatively disentangled from the bulk of the matter circulating round and gradually approximating to the centre of condensation, would be left behind as a ring, the bodies forming which, if they collided at all, would mainly collide with one another; and while their relative motion would be thus reduced, the comparatively large motion of which they are possessed in common in circulating round the centre of condensation would still remain, so that the tendency would be towards the masses forming a ring ultimately to collect into a single mass forming, as we may say, a planet. At first this would be at a very high temperature as a result of the collisions; but when these had pretty well come to an end, and the mass cast off had assumed its permanent form, the collected mass would cool down, so as to assume a moderate temperature long before the great bulk of the matter of the patch, which was collecting towards the general centre of condensation, had done with its collisions.

In our various physical speculations, however far backwards in the real or supposed chain of causation we may go, we are obliged to stop somewhere, and

start with an assumed condition of things which we treat as initial. In the present case, according to the supposition to which I have referred, we start with a condition in which matter is distributed, with a greater or less approach to uniformity, through space, and attracts according to the law of gravitation, and may further be supposed to be in motion, differently in different parts. I say *may be supposed* to be in motion, because if it were at rest motion would be produced as a result of gravitation; but the supposition of rest throughout is a very special and therefore restrictive one; that of motion would be the most general case.

According, then, to the supposed mode of evolution of the solar system, a mode which physical considerations seem to render probable enough, the argument for design, so far as it is founded on the adaptation of the solar system to the wants of the animate creation, comes to this, that the supposed initial state, containing though it does so much that is arbitrary, or that we may regard as such, was one designed for the welfare in some remotely future time of plants and animals afterwards to be brought into being. Now, I do not say that the argument for design is destroyed by the supposition of evolution to the extent in which I have been supposing it to have taken place, but I think it appeals to us less strongly. And the reason why the appeal is less

strong may very probably be this. We are apt to think of design as we experience it ourselves. Now when an engineer, for instance, designs a certain machine, he starts with certain properties of matter (the tenacity of steel and so forth) over which he has no control. These form his postulates; they lie wholly outside the field on which alone his design is capable of being exerted. Hence, in such a case as that of the evolution of the solar system mentioned above, we are beset by our anthropomorphic ideas; we think of the initial state as presenting the postulates outside alone of which design is capable of being exercised. But if we think of the initial state as itself brought about by a Being capable of designing, then there is still room for the exercise of design in bringing about the final condition of the system. I grant that by being thus thrown back into a remote region of operations which lie beyond our ken to follow, the evidence of design is apt to strike us less forcibly; but this is only what we might expect when we attempt to gauge by our finite minds the mind of a Being so immeasurably above us.

But even if the evidence of design in the adaptation of the inanimate environment to the wants of future living things were deemed to have failed altogether, there still remains the consideration of the adaptation of living things to their environment supposed given. To my own mind, it is in living

things, especially animals, that the evidence of design is the strongest. And the higher we ascend in the scale, the stronger it appears to be. Take the structure of our own bodies; take any one particular part, say the eye. It would be beside the object of the present lectures to dwell at length on the marvellous construction of the eye, with its transparent media adapted for the passage of light, arranged with spherical or approximately spherical surfaces, its crystalline lens, all adapted to cast an image on the retina, and not only so, but to remove in good measure the chief defect—that of spherical aberration —which would beset an optical lens of so large an aperture as compared with the focal length. Then, again, consider the wonderful arrangement of the recipient organ, the retina, with its nerves and nerve fibres ending in microscopic rods and cones; though here we begin to get out of our depth, as the mode of conveyance from the percipient organ to the sensorium is a mystery. Then, again, to pass to something we can better understand, we have that delicate automatically-adjusted screen, the iris, which guards the delicate retina from being injured by excess of light. And the whole of that exquisitely-constructed organ, the eye, is adapted to something quite external to the living being itself, something in its environment, namely light.

I have selected the eye as being at the same time

a wonderfully-constructed organ, and one in which we can follow the relation between the structure and the functions better than in many others. I think the evidence of design which it affords must be to most minds wellnigh overwhelming; though, at the same time, I grant that it requires some knowledge of the laws of light, and also of the structure of the eye itself, to feel the full force of the argument.

But here it will be necessary to advert to a theory which, if it could be established, would, I will not say destroy, but greatly modify the evidence of design afforded by the adaptation of living beings to their wants. I allude to the famous and highly ingenious theory of natural selection, which is so closely associated with the name of Darwin. This theory starts with certain postulates; the existence of life; the power possessed by living things, whether animal or vegetable, of reproducing their kind; the general similarity of offspring to parents, combined with small variations of detail—variations which, in the absence of fuller knowledge, we are to treat as casual. As the effect of reproduction tends to make the number of living things to be supplied outrun a full supply of food, space, and the various requisites for full vigour, in the struggle for existence which ensues, those varieties of form which are better fitted than others for their environment tend to survive, and by virtue of the laws above mentioned to

be perpetuated. Thus living things tend to settle down into forms each possessed of the property that it presents a maximum of advantage as regards the given environment. A sort of mathematical picture of the condition may be obtained by imagining a smooth undulating surface on which are placed a great number of material particles capable of being moved a little from their actual positions at a given moment. They would evidently tend to settle in the various hollows, where the depth below a fixed horizontal plane was a maximum. Thus in the actual case structural conditions which were advantageous might conceivably be kept from great deviation by the perishing of varieties in which the departure from the normal type was at all large; and two different species of living things might be kept from intermixing—that is, from being connected by a chain of intermediate varieties—like the groups of particles in different, even though neighbouring, hollows in the above illustration.

As my own studies have not lain in biology, I cannot for a moment pretend to speak with the authority of an expert. I can only take such a common-sense view of the question as is possible to an outsider. It seems to me likely enough that this principle may really operate to a certain extent, and so far as it does, it points out a sort of self-acting mechanism, founded for its action on the postulates

with which we started, for adapting the structure of the living thing to the requirements of its environment. This, however, does not destroy, but only alters the argument for design. If, indeed, the postulates of the theory were taken as self-existent and uncaused, then I grant the argument would fall to the ground. But I have heard on good authority that Darwin himself regarded the argument for design as rather elevated than destroyed by the adoption of his theory. I cannot say that I myself so regard it; but the question is, What is true in itself? not, What supplies an argument for or against something that one has other grounds for believing to be true?

But even supposing the theory to be accepted as accounting for the permanence of more or less neighbouring species, it seems to me inconceivable that it should be competent to bridge over the interval which separates remote forms; and if this requires something more than the mere survival of the fittest, then that "something" which accounts in the main for the existence of these remote forms may largely be concerned in the existence of neighbouring, though, so far as we know, distinct, species.

Nor is the existence of remote forms of life the only difficulty in the way of deducing them all from a common stock by the mere operation of the causes above mentioned. There are structures so complex, so artificial, so eminently (to all appearance at least)

having a purpose to serve, that it seems inconceivable that they could have been built up by a mere selection of haphazard variations from a type which in consequence of this selection undergoes a slow secular change. Take, for example, that exquisitely-contrived organ the eye. It is true that regarded as a mere optical instrument destined to throw an image on a screen it is subject to some minor imperfections which may be corrected in the work of the optician. But these are of a nature not seriously to interfere with its use; and in comparing the two it is to be remembered that the eye has, besides its purely optical functions, to satisfy certain unknown conditions relating to nutrition, growth, and reproduction, with which the optician in his work has nothing to do; and further, that when the image is formed on the screen of the retina the functions of the eye may be said in a certain sense to be only beginning; there still remains all the provision, which we can trace but a very little way, for connecting the stimulation of a point on the retina with the sensation of a point of light in a definite position in the field of view, and for securing that the stimulation of corresponding points on the retinas of the two eyes shall give rise to the sensation of a single point only in the field of view. It seems to me wellnigh inconceivable how any one who studies these various arrangements, so far as man has been able to follow them,

can imagine them to be merely the cumulative effect of casual variations selected in the manner supposed, or can fail to be impressed, perhaps even if he does so regard them, with the idea that they were designed for the office which we find them to fulfil.

But we are not to jump from one extreme to the other, and because we fail to see how these things can be accounted for through what we call second causes, to assume that each species is the result of a separate and independent creative act, and all the organs belonging to it separately and independently designed. Theism is by no means bound up with any such assumption as that. There are indications plain enough that there are second causes, little as we may know about them, underlying the final results of nutrition, growth, etc. By availing themselves of methods discovered empirically, but indicating the existence of second causes at work, the cattle-breeder, the florist, are able to bring about to a certain extent varieties such as they may desire. The laws of growth, beneficially though they act as a rule for the living being concerned, sometimes produce injurious effects. The horns of an animal may grow so curved as to press against its skull. Similar instances of untoward growths in special cases are not unknown. These things are analogous to what we find going on in inorganic nature, where general laws, beneficial in their action when con-

sidered on the large scale, as a whole, may nevertheless act injuriously in special instances. A thunderstorm clears the air, and the accompanying rain may often fertilise the parched ground, but as it passes over the country perhaps some individual may be killed by lightning. Such things must happen if the course of nature be carried on by law, as distinguished from a continuous miracle. We recognise the few untoward (as we should regard them) events as an inevitable result of the existence of such laws. Accordingly, if perfectly analogous untoward events occur in the organic world, we are led to attribute them to the operation of some general laws, of the existence of which we take them as evidence, even though we may be unable to say what those laws are.

Hence, then, in our contemplation of the organic world we are shut up between two extreme limits. One would consist in the refusal to admit the operation of second causes at all, and the demand that everything as to structure, and as to the separation of living things into perfectly distinct species, be referred to distinct and independent acts of a creative power. The other would consist in the reference of everything to second causes, and the refusal to look beyond what we can explain thereby, or for which at least we can offer some hypothetical explanation of that nature which we deem plausible. The first is excluded by the considerations, to some of which I

have alluded, which plainly indicate that there *are* second causes at work; the second involves an obstinate shutting of the eyes to the fact that there are phenomena which there does not seem to be the slightest prospect of our being able to refer to any such explanation.

Between the two limits of what we can explain, in the sense of referring it to a proximate cause, and what it seems impossible that we should ever be able to explain by reference to proximate causes, there lies a very wide region of unexplored country. Our ignorance of what may lie in this region does not authorise us to discard what appear, at least at first sight, to be such evident indications of design as we meet with in organised beings; to assume that these *must* be explicable by second causes of which we are ignorant, but which, *if* we knew them, would show the apparently designed results followed inevitably from certain simple postulates into the origin of which perhaps we do not care to look.

There was a time when each species, at least each well-defined species as distinguished from what might be regarded as a variety, was regarded as the outcome of a distinct and independent creative act, and it seemed irreverent to call this in question. This extreme assumption, made in accordance with the supposed requirements of theism, introduces a gratuitous difficulty in the way of theism itself. We

observe a general similarity of plan pervading immense groups of living things; take, for example, the vertebrate animals. The various bones belonging to one species of animal are found to answer to, to be *homologous with*, as it is called, the bones of another species, it may be of a widely-separated genus, and so for the other organs. Now this similarity of plan entails the preservation in one species, in a more or less modified or rudimentary form, of parts which in some widely-separated species have an important office to fulfil with reference to the wellbeing of the animal, but which in the animal first supposed appear to be utterly purposeless. Now, if each species were looked on as an independent creation, it is hard to imagine why these (to all appearance at least) useless portions of the frame should be constructed; perhaps even the insisting on the one side of the proposition that each specific form was the result of an independent creative act might give rise on the other to a doubt whether there was any such thing as creation at all. But once admit the operation of second causes, stretching probably far beyond anything that we can follow, and then it is easily intelligible that the maintenance of the general similarity of type may be a necessity of the operation of the general laws. And in order that it should so appear, it is not in the least necessary that we should know what those general laws are.

In contradistinction to the old idea of referring every observed phenomenon of the nature of the existence of species, the structure of animal forms, etc., of which we saw no explanation to the *immediate* interposition of the Supreme Being, we have nowadays a widely-spread adoption of the idea of evolution. In order to discuss with any profit the bearing of ideas of evolution on Theism, we must first of all explain the sense in which we use the term *evolution*.

Now I think that the idea ordinarily attached to it is, that the various observed phenomena are the immediate outcome respectively of something else, from whence they flow as necessary results. In this process we do not think of the origin of these laws; we take them as we find them, or as they have been arrived at, often slowly, by a long train of scientific investigation. At a later stage of scientific progress these laws are themselves regarded as the outcome of laws yet more elementary, and so on. The immediately observed phenomena are thus regarded as the last links in a chain of cause and effect, a chain in which the deduction of link from link does not involve the idea of design.

But the evidence of design afforded by the adaptation of organs to their functions and of living creatures to their environment is not thus eliminated unless we *assume* that this process, which we can actually trace only a little way, is capable of *in-*

definite extension backwards. But there is nothing to warrant such an assumption as this. Of course what lies outside such a chain of cause and effect as I have been considering lies by virtue of that outside the ken of science. But so far from its being self-evident that the whole system of nature lies within the ken of natural science, the evidence appears to be exactly the other way. I have already in a former lecture mentioned some things that we do not seem to see the slightest prospect of our being able to explain by merely natural science, and that do not even appear to be of the nature of what we are able to explain in this manner.

The conclusion, I think, to which we are led is this. We may safely use evolution as a working hypothesis, for trial, in our scientific investigations, nor is it likely that in fair, sober investigation it will fail us; for the most thoroughly convinced theist would naturally suppose that as the mind of the Author of nature must infinitely transcend our own minds, so the contrivances which He employs would run far beyond what we can follow. It is only when we think of natural science as being in itself, in its entirety (as distinguished from the portion of it with which we are acquainted) omnipotent for the explanation of the system of nature that there appears to be anything atheistic in evolution.

And yet even an extreme adoption of evolution

is not inconsistent with theism. In following the chain of causation link by link, each proximate cause which we use for the explanation of what follows from it may be looked on as a law laid down, be it mediately or immediately, by the Author of nature. In this way the idea of design is not lost even though the doctrine of evolution is employed in the freest manner.

To show how evolution may be regarded by a person whose views are of this nature, I may be permitted to mention the substance of a remark made to me by a friend of mine, an eminent biologist, now deceased. Before I was more than very slightly acquainted with him I knew that he was an out-and-out evolutionist. Not knowing whether he were even a theist, I one day made a remark to him of a nature calculated to draw him out on this subject if he felt so inclined. He made a remark to me the general substance of which is as follows: "For my own part I cannot do without a Personal God, but then God's way of working is not like ours. A man makes a poker or a shovel, but God's way of working is so different, with all the forces at His command." I found afterward that my friend was not only a theist, but a sincere believer in Christianity.

Closely connected with the subject of design, is that of personality, which we attribute to the

Supreme Being. I have already touched upon this in some of its aspects. On the present occasion, I propose to consider the question from a somewhat different point of view, which I think will be in full accord with the designs of the Founder.

I have said already that in speaking of God as personal, we must beware of associating the word with the limitations to which personality, as we know it in ourselves, is subject. I endeavoured to illustrate my meaning by reference to the laws of nature, such, for instance, as the law of gravitation, which we think of without reference to the limitations of time and space. But in thus endeavouring to enlarge our ideas we run the risk, on the other hand, of overlooking the elements of personality which belong to human beings. We hold intercourse with our fellow-men individually, by conversation, by correspondence, by reading the writings of those whom we may never have seen, who lived perhaps long before we were born. But can there be any intercourse between one of ourselves and a Being who governs the whole earth on which we live, with its fourteen hundred millions or so of human beings, not to mention the various races of animals and plants, and the solid framework on which they rest and grow? The difficulty of reconciling the two ideas is no new one. It was expressed long ago by a Hebrew monarch in those beautiful

words: "When I consider Thy heavens, the work of Thy fingers, the moon and the stars which Thou hast ordained, what is man that Thou art mindful of him, and the son of man that Thou visitest him?" I need not say what vastly increased force the subsequent discoveries of science have lent to those old words of David. These countless stars we now think of as suns analogous to our own sun, lighting up it may be, and from analogy it seems likely to be, planets circulating around them, those planets again, it may be, tenanted by tribes of living things, the forms of which, if such there be, we can never know. Surely, any one of us might easily imagine, it is absurd to suppose that the Governor of these countless worlds can pay any individual attention to such an insignificant being as myself.

But why should it be thought absurd? Is it not that in attempting to escape from the limitations which belong to our primary conceptions of personality in one direction, and to enlarge our ideas of the term as applied to the Supreme Being, our anthropomorphism besets us still, and we fail to conceive of a power as belonging to Him which we do not ourselves possess, or at most possess only in a very imperfect rudimentary form? We ourselves, as a rule, think of one thing at a time, though our thoughts may pass with great rapidity from one subject to another and back again. That they can

do so is certain; whether our minds can do more than this seems to be doubtful. It may be questioned whether the appearance of thinking of different things simultaneously is more than a very rapid oscillation of the thoughts between subject and subject. And yet there are some things with which we are very familiar that look very much as if we really had such a power in at least a rudimentary form. Walking is a voluntary act, under the control of the will; and yet as we walk along a road our thoughts may be absorbed in something which has nothing to do with our walking, or our intended destination. Reading aloud is not merely voluntary, but requires a certain amount of previous education; and yet we may go on reading, and reading quite correctly, out of a book while our thoughts are wandering to something else. These things certainly look as if we had to some limited degree the power of simultaneous attention to different things. Why may we not suppose a Being so immeasurably above ourselves as the Author of the universe must be, to possess *without limitation* a power of which we see some indications even in ourselves?

It is by exalting our ideas of God, and endeavouring in our conceptions of Him to remove those limitations which we derive from ourselves, that we are to avoid those errors that otherwise we are so apt to fall into. If we dwell only on His greatness, on the illimitable

extent of His dominion, we are apt to lose the element of personality; to think of Him much as we think of the laws of nature; to adopt a sort of pantheism; to neglect or perhaps even disbelieve His personal relations to ourselves. On the other hand, if we think only of His personal relations to ourselves, we are apt to get crippled ideas of His dominion; to overlook His omnipresence; to think of Him as dwelling in temples made with hands; perhaps to regard ourselves as special objects of His care, and think lightly of His relations to all our fellow-creatures.

It is by combining these at first sight incompatible attributes of personality and omnipresence that, without any arrogance or claim of superiority to our fellows, we are supported under the oppressive sense of our own littleness so forcibly expressed in the words of the Psalmist which I have quoted, and feel that we may hold communion with the great Author of nature; while, at the same time, we obtain a bond of union with our fellows deeper and more widespread than that arising from personal predilection. For there is a mixture of character in us all; we feel it in ourselves, we see it in those about us. Where the good element prevails, we are drawn towards the person possessing it; yet he may from time to time disappoint us. Where there is much evil we are repelled; perhaps tempted to neglect opportuni-

ties we might have of drawing out and strengthening the good with which that evil may be mixed. But if we look on our fellow-man as being, like ourselves, an object of God's care, as being one whom God is ready to lead on towards righteousness, if only he will be led, then we are led to regard him as we suppose that God regards him, to forgive his faults as we feel our own faults need forgiveness, to look with favour on any attempts we may see in him to act aright. Thus the common fatherhood of God becomes the strongest bond of brotherhood between man and man.

But in speaking of what ought to be our feelings towards the Maker of us all, and through Him towards one another, I feel that I have been rather outrunning what natural theology by itself alone can attain to. God is not merely the sustainer and preserver of man, as He is of His other creatures, but the Governor of a being endowed with moral faculties, capable of acting in accordance with His will or of rebelling against it. We are all conscious of having resisted His will, of having done what we ought not to have done, and neglected to do what we ought. Can we regard our Maker as our Father? Must we not rather regard Him with a feeling of dread, and try to hide ourselves from Him?

My subject is Natural Theology, and I must suppose these questions to present themselves to the

mind of one to whom no news of a revelation made from God to man had ever come. The oppressiveness of the sense of sin, the feeling of alienation from God which it produces, is well shown by the fact that in barbarous nations the rites which men enact in relation to a being above them mostly take the shape of doing something to avert his anger. Yet even among the heathen there were nobler spirits who attained to a higher state than this; who looked up to Him as to one who felt kindly towards them. How this might be, it is not, I think, difficult to understand. The wilful resistance to the will of God produces a feeling of alienation from Him; on the other hand, the doing of what is felt to be right meets with an approving voice within, and is calculated to lead to a hope that in some way sin may be forgiven. Further than this it does not seem that man can go by the exercise of his own reason and moral faculties; and surely we may hope that these yearnings after God will not have been felt in vain, for in every nation he that feareth Him and worketh righteousness is accepted with Him. Into the fuller hopes held out by what we hold to be a revelation made from God to man, and the more filial feelings which they are calculated to produce, I may not enter, for that is a subject lying outside the domain of natural theology.

Still, if we claim to have attained in this way to

a fuller knowledge of God than was possible for the seekers after God in the heathen world, we must beware of neglecting what is common to us and to them. Surely this fuller teaching was not meant to destroy but to fulfil whatever genuine aspirations after God were to be found in men of old. In the study of any branch of science, it is possible for the student so to devote his attention to the most recent acquisitions, to the novelties of yesterday, as to leave himself but ill-acquainted with the more elementary, but fundamental, principles of the science. So I believe it is possible for a man to get puzzled by running after theological speculations and subtleties to the neglect of what is fundamental and more important. Such perplexities are best got over on the *solvitur ambulando* principle. Endeavours to unravel the knots are all very well in their proper place; but after all, it is by endeavouring to follow the will of God according to our lights that these perplexities are best allayed.

In considering the subject of the relations of man to God, one of the most important questions that can be asked is, Is it possible in any way for man to hold communion with God? May he address Him in prayer? What is the object of so doing? What are the beneficial results that may be expected therefrom?

Now, by addressing God in prayer is not to be understood the mere use of the vocal organs. They may be used, and used in words of prayer, and yet there may be no more praying in the matter than in turning round a Chinese praying-wheel. Prayer implies a lifting of the heart to God, and that implies a belief that God knows and influences what is passing in our minds. It implies a belief in His omnipresence (for otherwise how should we know that we were not merely speaking into the air?) and in His personality. It is sometimes said that prayer makes no change in God, but makes such a change in us as to lead God to deal differently with us from what He otherwise would have done. This may be true in one sense, and yet not in another. Doubtless prayer is calculated to make a change in us, and through that change good may result to ourselves and others. But if we think of prayer as a kind of self-imposed exercise carried on by a sort of fiction, as if we were addressing another, when what we really believe is that we are *merely* attempting by our own exertions to influence our own minds, all the heart is taken out of it. A man would not long care for what he felt to be a sham. In prayer a man as it were lays bare the wishes of his heart before God. He may ask to have them granted (assuming, of course, that the wishes are not in themselves of anything unlawful), but it does not follow

that they will be. There may be reasons which he does not understand why the granting of what seemed to him desirable may be the very reverse. Hence his request is to be subject to the condition, expressed or understood, that the granting of it is in accordance with God's will. In thus holding communion with God the man's own character is elevated. Intercourse with even a human fellow-creature who is eminently good tends to elevate one who has had the advantage of it; how much more must it be with God! The prayer such as I have supposed prepares the man for thankfulness in case what he asked was granted, for resignation if it was not. The mode in which the object sought is to be brought about is a thing which it does not concern him to know. It need not involve any deviation from the ordinary course of nature; at the same time the possibility of some more direct intervention is not excluded. I have said that the mode in which the object sought is to be brought about is a thing that does not concern the man who prays. And yet in one sense it *may* concern him. The answer to his prayer may be to point out some post which he is to occupy in the chain of events whereby the object is to be attained, some duty which he has to fulfil in order to its accomplishment.

The views which I have endeavoured to express belong, it seems to me, quite properly to natural theology,

as bearing on what may be called the theory of prayer. Prayer, however, is to be found as a practice of most nations, even those with little civilisation. It is not to be supposed that uninstructed nations think of it as I have been attempting to explain, and yet its very general prevalence indicates that there is some want in the human mind which it tends to supply. I suppose it originated in the combination of a feeling of desire for some object which a man was unable to effect, or doubted whether he could effect, with a belief that there was a higher being, or higher beings, possessed of far greater power than himself, who might be able to accomplish the object, and who might be induced to yield to entreaties to do so. This, however, does not by itself involve anything necessarily elevating; indeed, it may be the very reverse. It may be that the object sought is one of revenge, or success in an unjust war. By itself alone prayer merely implies a desire of furtherance of the objects in the heart, and those objects may be evil ones. In such a case prayer is rather lowering than the reverse; it offers an encouragement to evil passions. But even if the thing sought were in itself harmless, the praying for it may involve nothing more than a wish to have it, and the prayer may come to be regarded merely as a sort of charm for obtaining it. How completely the idea of prayer may be degraded into that of a mere

charm, is strikingly shown by the use of a praying-wheel, to which I have referred. Perhaps we may be disposed to smile at the Chinese for using such an instrument. But we should remember the proverb about glass houses. Is there not something of a tendency even among ourselves to treat the *mere saying of prayers* as a sort of charm for the attainment of the object sought?

LECTURE III

Prospective provision—Infliction of pain may conduce to the general good—Conditions of lawfulness of infliction of pain on animals —Justification of capital punishment—Origin of Man, creation or evolution?—Theological bearing of the two hypotheses— Creation does not make God the author of sin—Its general prevalence referable to heredity—Question of a future life— Argument from difference in the conception of a past and future eternity.

WHEN we have arrived at a conviction that the whole system of nature is to be referred to a Being who is the Author of it, who governs it, and who designs the happiness of His creatures, it is well that we should study the principles, so far as with our limited powers of understanding we can follow them, on which the government of the world is carried on, and see if we cannot thereby obtain indications of some of our own duties. On the present occasion, as regards this subject, I propose merely to touch on two or three topics relating to practical questions concerning which there is not unanimity of opinion, and as to which it seems to me that hints may be obtained for our guidance by an application of the principle just referred to.

If we look, in the first instance, at the inorganic framework of our earth, and consider what science has revealed, or at any rate rendered exceedingly probable, as to its past history, we are struck by the ages and ages of preparation which preceded the first appearance of animal or even vegetable life upon it. And after their first appearance, what immense lapse of time there must have been while that vegetation was growing which is now laid up and at our service in the coal-fields. Ought not we too to exercise foresight for the wants of those who may live long after us? In freely using the stores of coal and other minerals of which the supply, large though it may be, is yet limited, ought we not to consider it a duty to have regard to the wants of posterity, and at least avoid reckless waste? Still more is this the case as regards races of animals useful to man, or trees the growth it may be of a great many years, which we ought not recklessly to almost exterminate in the selfish desire to supply our own immediate wants, or accumulate hoards of money without thinking of those who are to come after us.

Again, as the welfare of the lower animals is provided for, and means furnished for the satisfaction of their wants, it is our duty too to treat them kindly, to avoid cruelty, or the needless infliction of pain. Indeed, our natural feelings seem to teach us as much as that; to torture an animal for the sake of amuse-

ment would generally be regarded with abhorrence; would be taken as an indication of a low moral tone in the person who so acted.

But though in the system of nature we find provision for the welfare of the animal creation, yet we find abundant instances in which the satisfaction of the wants of one creature entails suffering on another. The very existence of animals of prey implies the slaughter of other animals which constitute their food. Here the exercise of the will of one animal occasions pain in another. Of course I do not mean that the infliction of pain on the victim is the object of the preying animal; he wants merely to satisfy his hunger; still, as a matter of fact, the voluntary act of the preying animal does inflict pain, more or less, on the animal that is going to be devoured. It does not follow that the animals of the class of the victim, nay, nor even the victim itself, are worse off than if no such preying had existed. As regards the animal devoured, it is likely enough that the sum total of the suffering it would have had to pass through in the decay preceding a natural death might much exceed that arising from the short pang it felt in the jaws of its devourer. And the curious experience of Dr. Livingstone shows that even this may really not be anything like as great as it looks. So that as regards the victim itself the chief loss may be the deprivation of the happiness it might

have had in the rest of its life if it had not been killed. But assuming that in a given place there is room and provision for a given number at a time of animals of the kind preyed upon, in the case of unreasoning animals that do not, it is to be presumed, distress themselves by the anticipation of danger, it seems to be a matter of indifference whether the sum total of happiness be distributed over a smaller number of animals with longer lives or over a larger number of animals with shorter lives. Hence even the curtailment of the lives of the animals devoured may not diminish the sum total of the happiness of the animals of the class and in the locality that we have under consideration.

In carrying on their course of life, the lower animals simply follow their instincts; at least there is nothing to warrant us in supposing that they have the feeling of right and wrong. We may therefore regard their mode of life as conducted under the sanction of the Author of nature. Man, however, has to ask himself, Is it or is it not right that I should act in such or such a manner? Now in answering such a question he may lawfully consult the established order of nature, in case that should throw any light on what the proper answer should be.

Suppose this question to be raised. Man can, if he wishes, live on a vegetable diet. It is true that he prefers as a rule to use some animal food along

with it if he can get it, and is in greater vigour when he does. But this cannot be obtained without inflicting on animals whatever pain may be inevitable in killing them; is it lawful for man to inflict this pain?

Now in this case the answer, as derived from the analogy of the system of nature, seems very plain. Man is under no moral obligation to become a vegetarian. But as the fact of the existence of animals of prey, or of animals that are in part animals of prey, and that live in part on a vegetable diet, gives no sanction to wanton cruelty, so in slaughtering animals for food we should avoid as far as possible the infliction of pain.

These things are so generally allowed that it may seem almost puerile to have dwelt upon them. But they naturally lead up to another question respecting which opinions are by no means so nearly unanimous.

When we lie upon a bed of pain or sickness, which is often worse than pain, we feel how much we should be ready to sacrifice if only we might be well again. We should be ready enough to forgo the use of animal food if we thought that the use of a purely vegetable diet would lead to our recovery.

In such a case the physician or the surgeon, as the case may be, does what he can to bring us back to health. But the amount of what he can do

depends very much upon what is known as to the rationale of the effect of medicines or the result of operations, or, in defect of theoretical knowledge, on previous experience, or on the results of experiments, if such might be made. But how are such experiments to be made? The physician would hardly venture to try on the human subject the effect of some powerful substance given as medicine, if the action of it on the animal economy had not to some extent been investigated. The surgeon who contemplates some new very severe operation would hardly venture on it unless some experience had been gained of the result of a similar operation on some animal. The question arises, May such experiments lawfully be tried on the lower animals, involving though they do a certain amount of suffering?

From the nature of the case we cannot here refer directly to the economy of nature as regards the animal world below man. But by inference from what has already been adduced I think the answer is very plain. If the difference between health on the one hand and severe pain or sickness on the other so much outweighs the inconvenience of restriction to a vegetable diet, and if, in order to avoid that restriction, it be lawful to slaughter animals for food, surely it must be deemed lawful to try on lower animals the effects of remedies or presumably

remedial operations, when the knowledge thereby acquired may have such an important bearing on the alleviation of human suffering. And the argument is strengthened by the consideration that whereas the slaughter of animals for food has to be made continually, and on a scale sufficient for the whole of the population to be supplied, the knowledge acquired through a physiological experiment made on the lower animals is a gain made once for all, and for the whole human race.

Again, the progress of medicine and surgery is very much bound up with additions to our knowledge of physiology, and it often happens that important questions in relation to the science admit of solution by experiments suitably conducted on the lower animals. The elucidation of these questions may not perhaps have for its immediate object the relief of human suffering; but an increase of scientific knowledge constantly leads to important practical applications, often of a kind undreamt of when the experiments which resulted in that increase were first instituted.

In this case again it seems to me that it *is* lawful to try experiments on lower animals, even though they may involve some amount of pain. But in both cases alike we should avoid all needless infliction of suffering, by refraining from needless repetition of experiments, by using anæsthetics when not pro-

hibited by the nature of the result sought to be obtained, by taking care that in an experiment calculated to cause much suffering the end sought to be obtained shall be of such importance as to justify the infliction.

I have spoken of our duties to the lower animals so far as they may be gathered from what we see in the system of nature. As to similar duties towards our fellow-creatures I need hardly say anything, they are so generally admitted, even though not always acted on. But man is a moral being, endowed with a feeling of right and wrong, which he is capable of yielding to or resisting, and is accountable accordingly. In relation therefore to his moral nature, questions arise as to how he should be treated which do not present themselves as regards the brute creation.

We, most of us, believe that the full consequences of evildoing are not seen in the present life. Yet even if we confine ourselves to those that are, there are some things which we see as following from the government of God that may serve to give indications as to what the laws of man should be; something tending to correct what at first sight might be supposed to be in accordance with the will of a merciful God.

There are courses of wrong-doing which even in this life bring their own retribution. By engaging

in a course of drunkenness or profligacy, a man may ruin his constitution for life. Perhaps late in life he may repent, and become really reformed. But his constitution may have been irrevocably shattered. The consequences of his former sin, as far as relates to his constitution, are not remitted. He must reap as he has sown. The law of nature is inexorable.

Now it is in full accordance with this that in human laws the penalty attached to an offence should rigorously be enforced; assuming, of course, that there are not special circumstances which might justify a remission or mitigation. It is with reference to capital punishment that this principle is chiefly called in question. A man, we will suppose, has wilfully and of malice prepense taken away the life of another man. There is no flaw in the evidence, nothing in the circumstances to indicate that his crime is legally or morally anything short of murder. The analogy of the course of nature, as far as that goes, would lead us to say that the law must take its course. Various other considerations into which I cannot enter, even some relating to what seems likely to be best for the criminal himself, lead to the same conclusion. Yet in such cases we constantly find that there are a number of persons who shrink from the idea of the extreme penalty; and indeed more sympathy often seems to be felt with the criminal than with his victim.

I have already touched on the subject of evolution, with reference to the whole system of nature. But there is one particular branch of the subject with which we are more especially concerned, on account of certain theological bearings which it has, and I think it well that I should dwell on this separately, and in some detail.

This branch is that relating to the question of the origin of man. Did man—that is, the human race, not the individual—come into existence, both as to his bodily frame and mental powers, by a very slow continuous transmutation, by steps which from one generation to the next were almost infinitesimally small, though cumulative, and in the long run considerable; so that some lowly organism, some creature at any rate utterly different from man, gave rise to a progeny which gradually in the course of ages came to be men and women; or was he formed by the Creator as man, no matter how?

From the nature of the case natural science can give no answer as to man's origin. It might conceivably have been different. It is conceivable that the rocks might have preserved such a continuous series of transitional forms, beginning with some lowly form of life and leading up to man, that we should have been forcibly impressed with the idea of a continuous transmutation. Yet even this, if it had existed, would have given no indication of a con-

tinuous development of mind in successive generations. Doubtless, if such a continuous series of outward forms had been found, we might have been disposed to think that of mind too there had been an analogous gradual development. But it is notorious that no such series as that supposed exists. Any remains of man belong only to the very newest geological series, and we do not find remains of earlier creatures whose forms lead continuously, or anything like continuously, up to him. We know that a certain amount of variation in the form of an animal, which has a tendency to be perpetuated, at any rate for a generation or two, may be artificially produced by attention to breeding, and we know also that a change to some extent may be made by a slow continuous alteration of the conditions of the environment. We know that a succession of allied forms of animals may be traced in successive geological strata. But that is pretty nearly all; the rest can be but scientific conjecture. The evidence appears to be utterly insufficient to establish, on scientific grounds, the derivation of man by continuous natural transmutation from some different form of living thing.

And as to a continuous development of mind leading up to the mind of man, of direct evidence we seem to have absolutely none. The theory of evolution is rather weighted with the necessity for supposing that there must have been such a thing

than assisted by any evidence that there was. The little evidence that we have seems rather the other way. As we cannot have fossil evidence as to mind, we can only take the living animals which come nearest to man in form, and see whether we can find, as the theory on trial makes it probable that we ought to find, some approach to the mental condition of man. But the gorilla, the chimpanzee, are not specially remarkable among animals for intelligence. So on the whole the scientific evidence for transmutation, in other words for evolution, as applied to the origin of man, seems to me, I confess, of the very slenderest kind. When I say this, I mean the word "evolution" to be taken in the strict sense defined in a former lecture; I would not myself apply the word to anything that involved a direct interposition of the Creative Will, however slight might, in the first instance, be the change thereby effected.

The rival hypothesis is that mankind took its origin through a direct act of the will of the Creator. What the nature of the change thereby effected may have been, it is not for us to inquire. It may have involved direct animation of a previously lifeless mass of matter; it may have involved a change in what was already a living creature of a different kind; I do not see that we have anything to do with that. From the nature of the case this supposition cannot be verified by scientific methods. Yet

it falls in with the utter absence of forms leading continuously up to man; it falls in again with the existence of the great gulf which seems to separate the mind of man from the minds, such as they are, of the lower animals. Perhaps the chief difficulty attending it (assuming, of course, that the idea of intervention is not discarded as such) is that arising from the general similarity of bodily structure between man and many of the lower animals. Why, it might be asked, should there be this similarity at all if man came into being by an independent act of the Divine Will? This difficulty, however, is anything but formidable. Man is an intellectual and moral being, but he is at the same time an animal, and has wants in common with the lower animals. If their bodies are adapted to their mode of life, it stands to reason that a body constructed on somewhat the same general plan would be suitable to him. And the differences which we do perceive are of a nature to fit him for his mode of life. The appropriation, for instance, of the two lower limbs to walking, and the upright position, set free the upper limbs, and enable the hands to be employed in the various works to which his intelligence directs him. The freedom of his body from hair, requiring him to protect it with clothes, which he has the intelligence to make, and can adapt to the temperature, enables him to live in comfort all over the earth, with the exception of a

portion of the ice-bound regions around the two poles. The difficulty, therefore, just suggested is hardly deserving of the name, and might well be dismissed even if we knew that man's body was originally formed directly from inorganic matter. But it may just as well have been formed by a designed alteration from some previously existing living form, and on that supposition there might be an additional reason for a retention of the general type, namely, to avoid a needless amount of disturbance with the previously existing order of things. The one important question is, Did mankind come into being by a gradual process of evolution according to ordinary natural laws from something previously existing, or by a direct act of the Creative Will? This is a question which has, I think, an important theological bearing; but if the latter alternative be adopted, then it does not seem to signify in what way his creation took place.

I come now to the theological bearing to which I have referred.

Man is a moral being, capable of doing right and wrong, and there is no man who does not do wrong. It would seem as if some of the best men felt as if they oftenest did wrong, the reason being that their standard of duty is so high that they admit as shortcomings of duty things that many other men would not think about. The existence of sin is a great

fact; let us examine it under the two hypotheses as to the origin of man.

According to the first hypothesis, the human race in its present condition was gradually formed by a slow process of evolution under natural laws from some lowly animal form. The mental condition would undergo a slow process of development just like the bodily. Sin, therefore, gradually grew up along with the development of the moral nature, and is to be looked on accordingly as part of our nature such as God made it. Sinning is part of our nature, like walking, or eating and drinking. Great sins are to be avoided, just as gluttony should be avoided, though eating is lawful. This theory, therefore, makes God the author of sin. As sin, at least in moderation, is part of our nature, we need not think so very much of it, nor can we expect ever to get rid of it. Nor need we suppose that any very serious consequences will result from it; for how can we imagine that God, who wills the happiness of His creatures, will hold us seriously responsible for what is inherent in the nature that He has given us? not indeed *given us directly*, but resulting from the necessary and inevitable operation of the laws which He has established, which comes to much the same thing. We should indeed avoid great sins, and try to improve somewhat; but presently death comes and puts an end to the whole matter. For if man arose

by continuous transmutation from some lowly organism, it would be flying in the face of the law of continuity to suppose that on dying he leaves some residuum living in an active or dormant state, unless the same were true of his immediate ancestor, and the same again of *his* ancestor, and so on till we get to some lowly animal from whence he sprang countless ages ago. But this is a supposition so contrary to all appearance, so artificial, so apparently unreasonable, that it would be almost universally rejected.

According to the hypothesis of man's special creation, we are exempt from the difficulty of making God the author of sin. We should naturally suppose, *a priori*, that in creating a moral being, God would have created him in a condition of moral uprightness. His retention, however, of that state would depend on the use he made of the free will with which he was endowed. We can see no help for the contingency of man's misusing his free will other than not to trust him with it, but to make him a sort of conscious machine, as I mentioned in a former lecture, which would be assigning him a lower position in the scale of created beings. According to this hypothesis then, the entrance of sin into the world is accounted for without making God the author of sin. The one difficulty which at the first blush seems to beset this theory is that it does not appear to account for the universal prevalence of sin. If each human

being be endowed with free will, and yet none fail to misuse it, the chance that a man would use it aright must be practically infinitesimal; else some among the countless millions of the human race could not fail to escape the misuse. But if man were created with only such an infinitesimal chance of his making a right use of his free will, does not that come to much the same thing as if he were created a sinner, and does not the present hypothesis as well as the former virtually make God the author of sin?

To my own mind the answer to this difficulty, otherwise a formidable one, lies in the natural effect of heredity. We know that there is a tendency towards resemblance between offspring and parents, not merely in features and bodily peculiarities, but even to a certain extent in mental character. It is well known, for instance, that there is such a thing as a hereditary tendency to insanity. Now if man were originally in a condition of perfect uprightness, and if in the use of that free will with which he was endowed, he once rebelled against what his conscience told him was right, it stands to reason that the law of conscience being once broken through should thenceforth be powerless to keep man in a state of perfect rectitude. It may offer a check to his wrong-doing, but that is all; it can no more fulfil its original function of keeping him in the path of uniform

rectitude than an egg that has fallen upon the pavement can be made a whole egg again. Hence, if man was originally perfectly upright, and once broke through the bounds which were intended to keep him in that condition, a vast mental change must have come over him. How great the change must have been, none of us can tell by our own experience, never having known the condition of perfect innocence. Now if this gigantic change came over the condition of original man, it is in full accordance with what we know of the laws of heredity that the posterity of original man should inherit his changed moral condition. Hence the posterity were never in the condition of original man, and therefore the fundamental assumption tacitly made in the sort of chance problem which I brought before you just now, namely, that the probability of obedience to the law of conscience was to be taken the same for posterity as for original man, is one which must be rejected altogether; and therefore the conclusion which was based upon it, namely, that the second hypothesis made God *virtually* the author of sin, which the first hypothesis did directly, falls to the ground.

The laws of heredity, it will be observed, are not in any way chargeable with the misuse, by original man, of the free will with which he was endowed. They doubtless have their office to fulfil, whatever it

may be. And if evil as well as good is capable of resulting from their operation, that is in full accord with what we see around us in the system of nature: the same fertile land which is available for growing crops for human food is capable also of growing noxious weeds or poison-plants.

In comparing the two rival hypotheses which I have brought before you, we have seen how the second relieves us from a most formidable moral difficulty which besets the first, namely, that of making God the author of sin. In connection with this the two present us with a very different view of the seriousness of sin. I have mentioned already in what light the first tends to make us regard it. The second exhibits it as having been responsible for the loss of all that might have been man's, whatever that may have been, had man remained in a condition of uprightness, as well as responsible for all the misery which is traceable to wrong feeling and wrong doing all over the earth and all through the centuries. Lastly, with regard to prospects in the future, the first hypothesis holds out to us merely hopes of improvement, imperfect at the best, and cut short by death. The second presents us with a bright picture in the past of what *might* have been the opening of a glorious day, but soon became overcast and involved in gloom, and leaves us with the feeling—Oh if such a state of things could be brought back!

If it be important to study natural theology and avail ourselves of such guidance as it may afford, it is important also frankly to recognise what it fails to do. With regard to the subject last before us, it can but leave the mind in the condition of a field ploughed and harrowed, ready to receive the seed of a better hope, if such there can be found.

What I have just been saying as to the limitation of the power of natural theology to guide us into truth leads me to refer to a subject on which I can say but little, notwithstanding its vast importance in itself, because I feel myself hemmed in, on the one hand by my own convictions, on the other by the restrictions contained in the Will of the Founder. I have spoken of aspirations, which even by natural theology we are led to entertain, after a condition in which there shall no longer be that imperfection which besets us here in obedience to what is right. But where is such a state to be found? Does death make an end of a man; and if not, may it be possible to attain to such a condition in some future state of existence?

Is there any such future state of existence? What is the evidence of it? Can we make out anything about it? Important and intensely interesting as these questions are, natural theology can give but a faltering and uncertain reply. Among the philosophers of old there were some who looked with

tolerable assurance for a life beyond the grave, though they had but poor evidence to give of it. Even this much seemed to have an elevating influence on the life. Perhaps it would be truer to say that their aspirations after doing right relieved in a measure with them the alienation of man from God; led them to hope in His mercy; to trust that in some way He would not cast them away at death; that there might yet be some good thing for them on the other side of that which, to the eye of sense, seemed to involve their destruction; so that the hope of some good thing beyond, and the aspirations after God, acted and reacted on each other. Ought I not then in these lectures to dwell upon hopes of something beyond the grave so far as natural theology can carry us? My reply is that though the subject as a whole is one about which I have thought much, and formed a very definite opinion, my belief is that what has been done on the basis of mere natural theology, good though it may be in default of something better, goes but a little way, and even in that is not free from error; and that as regards the real evidence of a future life, and the conditions of it in so far as they can be made out, we must have recourse to a source of information above man's natural powers: not in conflict with those powers, but supplying them with what by themselves they could not attain to. But this lies outside the domain of

natural theology, and leads us into a region into which I may not enter.

And yet, there is one consideration of a rather metaphysical character, which, if I may judge of the minds of others by my own, so falls in with the idea that man's career was not designed to have been cut short, as to all outward appearance it is, by death, that though it may not be of great weight in itself is yet confirmatory of what, on other grounds, we have reason to believe to be the truth. And the reason why I select for mention this particular argument is that I do not happen to have seen it brought forward anywhere, whereas the argument derived from the observation that virtuous or evil living do not seem to meet in this life recompense in proportion to their deserts, while yet we feel that God is a Righteous Governor of the world, and therefore there must be some state beyond death in which men will be rewarded according to their works—this argument, I say, is one familiarly known, so that it is hardly necessary to dwell upon it.

Let us dwell a little upon the idea of time. We look forward to what we expect to take place to-morrow; we look backwards on what took place yesterday; there is no more difficulty about the one than about the other. Nor is this confined to a short space of time, such as a day. We can look back-

wards to the landing of Julius Cæsar in Britain, or to the fall of Babylon, and similarly we can look forwards to a possible conflict between two nations which we can imagine to take place long after we are dead; of the two conceptions, one is as easy as the other.

Nor can we fix any limit of duration in either case. When we think of some event as happening in the remote future, no matter how far off, we cannot help thinking of the time that is to follow it. When we think of any event as having occurred in the past, no matter how far back, we cannot help thinking of time before it. The mathematician may express the place of a planet (supposed undisturbed and unresisted) in its orbit by a formula involving a symbol (t suppose) denoting the time elapsed from the present moment to any future time for which the place of the planet may be required to be known, and the very same formula will serve to make known where the planet was at any assigned interval before the present time; we have only to make t negative. Nor is there any limit to the magnitude of t in the one case or in the other.

But now, instead of considering as it were a mathematical abstraction, regard time as occupied by events; as being, so to speak, the seat of history. As regards the future, we may in imagination extend the time indefinitely; we may pass in our concep-

tion from time to eternity; we may in imagination continue our history for ever.

But if we attempt to carry time, regarded not as an abstraction but as the *seat of history*, indefinitely backwards, we seem to be overwhelmed. There seems to be something that we cannot well fathom in an *actually written* past eternal history. Of course I use the word "written" in a metaphorical sense. Scientifically considered, and on the large scale, the order of nature seems to be one of progress, not periodicity. We may in our speculations think of suns as formed by condensation of matter diffused over space. But how came the matter there? If it began to condense at the time we first fixed on in our imagination, we ask ourselves, Why did it not condense before? If we say this diffused matter was created, we cannot help asking ourselves, What took place before its creation?

This difference in the facility, might I say possibility? of conceiving a past and a future eternity, *when time is thought of as the seat of history*, seems to correspond to a difference in the condition of man regarded as a being existing in time. Man had a beginning in time (I speak here of the individual man, not the race), and accordingly there may be problems regarding an infinite past that baffle his ideas. But the fact that he is able to look forward to an infinite future falls in with the supposition

that, according to his original creation, man (the individual man) was not intended to be brought to an end. Whether on the supposition which even natural theology points to, that he was originally created in a condition of innocence, but fell from it by misuse of the free will with which he was endowed, that change made any difference to him in this respect; whether, that is to say, the fall that has been supposed left him still an immortal being, or deprived him of immortality, or left it still open to him to attain to it, and if so, under what conditions —these, I conceive, are questions which it does not lie within the competence of natural theology to answer.

Leaving then these questions, I would go back for a moment to the consideration of what I brought before you just now, namely, the result of attempting to conceive a past eternity when we regard time as the seat of history. We have seen how, by the freest indulgence of scientific imagination in tracing the past history of the universe, we are at last led up to the self-existent and uncaused. That name of God, I AM, seems to represent the furthest limit of human thought.

LECTURE IV

Anomaly of man's capacities combined with mortality—Anomaly of welfare not in proportion to deserts—Hypothesis that man consists of a mortal body and a soul surviving death—Evidence that the body is concerned in thought—Materialistic theory—Difficulties of both psychic and materialistic theories—Theory of man's tripartite nature—Possibilities which it holds out—Recapitulation.

TO-DAY I mean to bring before you a subject which I admit is speculative, but which is not therefore, I think, to be discarded as necessarily useless. It has helped to render my own thoughts more steady and definite, and seems to me to be a thing worth thinking about, whether you incline or do not incline to the ideas which I shall have to suggest.

If we attempt to frame a system of natural religion by inference from what we visibly observe about us, and have arrived at a conviction that there is an All-powerful Author of nature, and have further been led to regard Him as a being at the same time righteous and benevolent, we encounter some formidable difficulties to which the things we see around us do not seem to afford any solution.

First, there is a teleological difficulty. We ob-

serve in animals, and in man regarded as an animal, an adaptation of the structure to the wants of the creature, an adaptation of so refined and complex a nature as forcibly to impress us with the idea of design, even though we can go but a little way towards a full explanation of the mode of action of the whole. But man is more than a mere animal; he is endowed with intellectual powers; he is capable of continually acquiring fresh knowledge, nor does there seem to be a natural limit beyond which he cannot go. He is prompted by a sort of natural curiosity to go continually onwards in the pursuit of knowledge. The acquisition is made step by step, and the accumulation of the store requires time. Surely, we might have supposed, arguing only on teleological grounds, an indefinite extension of time is intended to be allowed him. But then comes death and cuts short his progress—death, which to all outward appearance, makes an end of him altogether. Here then appears to be a glaring violation of the teleological law of adaptation to requirements.

And this, apparent at least, want of adaptation is rendered all the greater by the power that man possesses of availing himself of the knowledge accumulated by his ancestors. Birds of a given kind go on generation after generation building the same sort of nests, living the same sort of life; but man instructs his fellow-man in the new knowledge which

he has acquired by the exercise of his own intellectual powers, commits, it may be, an account of it to writing, and thus enables a succeeding generation to start on a higher level of knowledge than the generations before. Time is required for the acquisition of even a fraction of the knowledge thus accumulated.

Again, man is a moral being, having a sense of right and wrong, possessed of a feeling of responsibility. Surely, we might have thought, as God is righteous, He will provide that the upright man be happy and prosperous, though He may punish the wicked man by allowing him to sink into misery. And doubtless we see a considerable tendency towards such a condition; uprightness *does* on the whole tend towards prosperity, and wickedness the reverse. But this is hardly a fair answer to the objection, because our observation is derived from a settled state of society, in which, moreover,—and this is very important as regards the argument—there is far more than mere natural religion tending to influence men's conduct. Yet even in a settled state of society we often see virtuous men suffering much misery, and wicked men prosperous to the end. So that even under these circumstances there is much to perplex us as regards the moral government of God if we suppose that death does what to all outward appearance it appears to do, and puts an end to a man altogether.

Accordingly many men of old of a thoughtful spirit, who had no revelation to guide them, were led to believe that death is not what it appears to be, a termination of man's existence, but that there is a state beyond in which he continues to exist. Such a state beyond death might leave room for a continuation of progress here so rudely interrupted, and also furnish opportunity for the requital of a man according to what he had done. If, however, the body were essential to man's being, as that goes to corruption, he must come to an end. Man was accordingly supposed to consist of two parts, the body and the soul, the latter being that to which thought and consciousness belonged; and at death the union was looked on as dissolved, and the soul set free to enter on a new mode of existence.

But is there any evidence, save the solution or rather possible solution which the supposition affords of certain difficulties which lie in the path of natural theology, that there is anything about man which survives the stroke of death? When I ask, "Is there any evidence?" I mean, of course, apart from revelation.

Some have endeavoured to establish the separate existence of the soul and its immortality by metaphysical arguments founded on the supposed nature of the soul itself. I suppose arguments of that kind appear differently to different men; for my own part I can only say that I have never seen any that,

to me, seemed to have the slightest weight. I will pass on then to what we do know about thinking and consciousness from our own experience.

Now, when we are walking, we know very well that we are moving our limbs; we know that it is only by means of our body that we are able to walk. But when we are thinking, there is no direct consciousness that we are using our bodies in any way in so doing. If that were all, we might very well suppose that thinking took place *wholly* through something which was independent of the body. But physiological observation does not lend support to the idea of such independence. The process of thinking is found to be intimately connected with the state of the brain. Diseases affecting the material organ usually are accompanied by a feebleness or erratic condition of the mental powers. In a faint, when the brain is feebly supplied with blood, thought is in abeyance. Something of the same kind takes place in sleep, though the transition from full consciousness to unconsciousness and the return are by no means so sharp in sleep as in a faint. There are, indeed, persons who assert that in sleep thought goes on all the same as in the normal waking condition, and the only reason why we do not know it is that we do not recollect what our thoughts were. But this appears to be a pure assumption made in the interest of a preconceived theory of the separate existence of

that within us which thinks. I do not see how we can conceive of consciousness as existing or thought as carried on during an interval of time in which memory is absolutely non-existent. It seems to me that the purely psychic theory, as it may be called, which would discard the body altogether in regard to the process of thought, is beset by very great difficulties.

The patent fact that the process of thinking is so intimately connected with the condition of the brain has led others to adopt what may be called a purely materialistic theory. According to this, thinking is simply and solely a mechanical process taking place in the material molecules of the brain, depending on certain motions going on in them, involving a certain action going on in the body and nothing else. According to this view, inasmuch as the body goes utterly to corruption at death, the soft pulpy mass constituting the brain being one of the most readily perishable parts, the man must come utterly to an end at death, and therefore the teleological and moral difficulties mentioned above as besetting natural theology remain in full force. Or, at least, if for the sake of evading these difficulties it be supposed that a fresh organism is afterwards created and started to continue the motions that had been performed in the former, just as a tune, a portion of which was played on an organ that was then demolished, might be

completed on a fresh organ altogether, we should have been driven to a hypothesis at variance with all analogy, violating the law of continuity, and preserving personal identity, if indeed it can be said to preserve it at all, only through a sort of special miracle wrought in each particular case.

But granting that the state of the brain and its activity are intimately bound up with the process of thinking as we know it, say, are *necessary* to that process, it by no means follows that they are *sufficient*. On the contrary, the supposition that they are sufficient involves great difficulties even without reference to natural theology, much less to revelation. It is difficult to imagine how any such purely mechanical process as that supposed in this theory can be compatible with free will, with the power of choice, of which we are innately conscious. Again, take the existence of memory. According to the materialistic hypothesis, we can only imagine that what passed through the mind in relation to past events is in some way stored up in the cells of the brain, in some such sort of way as books are stowed away in a library. In addition to the great initial difficulty of conceiving how such a process as thinking can possibly be conditioned *merely* by certain molecular motions in the brain, we have here the further difficulty of understanding how such a soft, pulpy mass, in continual change from the effect of the wearing

away of tissues and their renewal by nutrition, could possibly retain for years the record of an event which perhaps was not thought of for a very great length of time.

It seems to me that both theories as to the origin of thought, the psychic and the materialistic, are beset with difficulties. May it not be that the truth lies between them, or rather involves a combination of parts of each? May it not be that there is a something constituting the *ego* which, on the one hand, is not to be identified with thought, and which may exist while thought is in abeyance; while, on the other, it is not to be identified with ponderable matter, but yet exercises over ponderable matter a sort of command? May it not be that thinking is a process which results from the interaction of the ego on the organism with which the ego is associated, over which it is, as it were, placed in command? According to this view, the ego is something lying deeper down in our nature than thought itself—something the destruction of which is not involved in the destruction of the body, inasmuch as it does not consist of ponderable matter—something which might conceivably, without any breach of continuity, preserve the personal identity between the man who died and the same man in some different stage of existence.

Perhaps it may help to make the ideas which I

have broached more readily intelligible if I refer by way of analogy to an instrument recently invented. I allude to the phonograph, that remarkable contrivance by means of which the words of a speaker may be audibly reproduced after the lapse of almost any interval of time. In this instrument a wax cylinder receives minute indentations, through the agency of a receiving instrument, from the sounds that are uttered in its neighbourhood; these indentations it retains, and through them the sounds registered, or any portion of them, may be given out again at pleasure, and that repeatedly, by means of a suitable emitting instrument. I would compare the wax cylinder to the personal being, the ego; the registration on the cylinder to impressions received from without; the retention of the marks on the cylinder to the retention by the mind of something that passed through it before, but which is not at the moment thought of; the giving out of a sound previously registered to the recollection of something that passed before. It will be understood that this is meant only for a rough illustrative analogy; the comparison is not to be pressed too far into detail; nor is the possibility of the origination or continuation of fresh trains of thought without the reception of fresh impressions from without at all intended to be denied.

It is true that this supposition, taken by itself alone, does not wholly remove the teleological and

moral difficulties that I have mentioned; it needs to be supplemented by something else, to find which we must go slightly outside the limits of purely natural theology. And the reason why I say that the difficulties are not wholly removed is this. According to the supposition, the ego is something lying deeper down than thought, though intimately concerned in thought. If thought, as we know it, involves an interaction between the ego and the material body, what becomes of thought when the body goes to dissolution? To this difficulty natural theology might offer a conjecture. Perhaps the ego might be capable of thought by itself; perhaps it may be associated with some other organism, composed or not composed of ponderable matter, by its interaction with which thought may be carried on. Still, a conjecture such as this is all that natural theology can offer; but what to it can only be a conjecture is promised according to the Christian religion, which tells us of a future body, of what kind we know not, but still of some kind, by interaction between which and what I have called the ego thought may conceivably be carried on.

I am forbidden to dwell on the evidence for this; but as I said in my opening lecture I do not think there is anything in the Founder's will to prevent me from pointing out how something which we learn only through revelation, if *supposed* to be true, fits

into and supplies a want which natural theology points out, but is unable to satisfy.

But perhaps it will be said, Is it not highly unphilosophical to have recourse to the supposition of the existence of an unknown something which you call the ego in the attempt to explain observed phenomena? We know that thinking is accompanied by activity of the brain. Must it not be to the material organism that we must look for a full explanation of what it consists in?

Doubtless, in true philosophy we are not without grave reason to assume, even for trial, the existence of an unknown entity in order to account for observed phenomena. We must first well consider the possibility of explaining them through known proximate causes. But if none of these seem to hold out any prospect of an explanation, it *is* sometimes well to assume for trial the existence of some such cause of which previously we had no idea. The history of the progress of even physical science is not without evidence how some very substantial increase to our knowledge might have been nipped in the bud by an obstinate refusal to entertain, even for trial, the supposition of the existence of some entity of which we had no previous knowledge. Take, for example, the commencement of the modern theory of light. The fact that light proceeds in straight lines from the body that emits it, suppose one of the heavenly

bodies, seems akin to what we know of the motion of projectiles. It is true that we had no direct evidence of the existence of light as a substance; but it did not seem to be stepping far outside what we had direct knowledge of to suppose that it was of the nature of projectiles. But another supposition was started according to which light is not a substance, but consists in the vibrations of a medium filling all space, at least to the remotest visible star. But what of this medium? What evidence have we of the existence of any such thing? Taking the state of our knowledge at the time when the undulatory theory of light was started, the answer must be, We have none. Had it been imperative to reject the theory of undulations because it required the hypothesis of the existence of a medium, the so-called ether, of which we had no knowledge, and of the existence of which our senses gave us no direct cognisance, the splendid edifice of modern optics could never have been erected. We know that even the genius of Newton was powerless to explain the curious phenomena of diffraction which excited so much of his attention, and which he subjected to careful experiment, because he took up the corpuscular theory of light, rejecting the theory of undulations, though not, it is true, from reluctance to suppose that any such thing existed as an ether, but for a different reason. We now know with what

beautiful simplicity the complicated phenomena of diffraction have been explained through what we have every reason to regard as the true theory of light.

And so it seems to me that mere materialism does not hold out any prospect of leading to an explanation, I will not merely say of thought, but even of the phenomena of life in the lowliest form of animal or plant. There appears to be a well-marked line of demarcation between inorganic nature and the forms of life. It is true that we get dendritic crystallisations which sometimes simulate in a rough way the outward forms of some kinds of plants. But this does not go beyond the merest superficial resemblance. In crystallisation we have nothing like the formation and multiplication of cells. It would seem as if there were something about a living thing which exercised a sort of command over matter. I do not say that the forces or laws to which inorganic matter is subject are opposed or superseded when matter belongs to a living thing. The chemist has no command whatsoever over the laws of chemical affinity, and yet, by working in obedience to those laws, he is able in his laboratory to form a variety of compounds, some of which do not occur in nature, while others do occur, but are formed perhaps in some vegetable, in some manner totally different from that by which they have been

obtained by the chemist. So, it may be, this unknown something on which life depends acts on matter, without any interference with the laws which belong to it as such, with the result of bringing about the growth, and so forth, of the living thing.

Whether we shall ever be able to get through scientific observation some insight into that mysterious something on which life depends, and more especially whether we shall ever be able to arrive in this manner at some explanation of the relation of the bodily organism to thought, may well be doubted. As regards the latter, which is what chiefly belongs to our subject, if any progress is to be made, it would seem most likely to be effected through a careful study, both physiologically and psychically, of abnormal conditions, such as those of dreams, of somnambulism, of the mesmeric state, of double consciousness, of delirium and insanity. But if we lay down as an axiom the truth of the purely materialistic hypothesis, according to which a living thing is simply an elaborate machine, acting by virtue of its construction through the laws which regulate the action of dead matter, and not requiring anything more, it may be that we shall thereby bar out all possibility of advancement, just as we should do with regard to the phenomena of diffraction by refusing to entertain the idea of an ether.

I said at the outset that the views I had to put

before you on this occasion did not amount to more than a speculation. I am forbidden to lean on the teaching of what at least professes to be a revelation. But I do not conceive that there is any impropriety in my just pointing out that the speculation I have brought before you seems to fall in with the Scriptural account of our complex nature. According to the views of Plato, in which he is very widely followed, man consists of two parts—body and soul. But in Scripture we have a threefold division, into body, soul, and spirit, whatever the latter two may respectively mean, a subject into which it would be out of place for me to attempt to enter.

The speculations into which I have ventured to enter, open out some ideas as to future possibilities which it may be well that I should indicate; premising that I do not for a moment claim acceptance for these views, though after all they are closely akin to what is very commonly thought by those who believe in a future state at all.

According to the ideas which I have broached, all our past thoughts, or at least all the exercises of our will, remain impressed upon our being; capable of being brought out, though at a given time we think of but few of them, and some remain unthought of at all, and seem to have quite passed out of our memory. The activity of the memory depends in great measure on the condition of the body. In extreme old age,

when the vital powers become enfeebled, there is very commonly found a failure in good measure of the memory also. Now, if that on which the past things that concern us are registered, and brought before our thoughts from time to time, be something distinct from that structure of ponderable matter which constitutes the body, and be not destroyed with it, and if it be subsequently connected with—put, as it were, in command of—a body of a very different nature, specially adapted for the requirements of the spirit, it is conceivable that all of the past that has been impressed upon our being may be read by the memory with a vividness, with a completeness, with a rapidity, of which, in our present state, we have no idea. It may be that every wrong thing we have ever done will stand before us in its naked deformity; that every right thing will be remembered with a feeling of satisfaction.

It often happens that ideas are more clearly entertained from being connected with something concrete. Permit me, then, once more to refer to the analogy of the phonograph. The whole of a long speech may be recorded on its cylinders. There the record remains, out of hearing, out of mind, it may be out of recollection altogether. But there it is, capable at any time of being brought out; capable of convicting the speaker of having said what he ought not to have

said, if such has been the case. In one respect the analogy fails to illustrate what I have been attempting to suggest. The wax cylinders can but give out what has been impressed on them in succession, just as it was received; they fail, therefore, to illustrate the supposed activity, and rapidity of passage from subject to subject, which was conceived to belong to memory when the being is in possession of a body of a more refined nature than the present.

But whatever may be thought of the quickening of the memory in a future state of existence, there is one thing respecting the effect of right and wrong exercises of the will which we know very well by experience. We know that habits, as a rule, are of slow growth. Character is formed by degrees as a result of repeated exercises of the will. I do not for a moment deny that sometimes a change may suddenly come over a man which has the effect of altering his whole course of life. Yet even in such a case, though a change in the character may begin, it requires time for becoming matured. The man's course may be compared to a curve in which the direction of the tangent takes a sudden alteration. It may be that the curve, thought of as continuously traced, which had been descending begins to ascend. Yet it does not all at once attain a high elevation, though it may tend to rise more or less quickly. Thus evil habits, the result of repeated evil acts, still

exercise a baneful influence even after a man has begun to reform.

I was much struck with an illustration of the relation of character to acts which I heard given by the late Professor Clifford in a lecture at the Royal Institution. It is, however, one which I fear will only be understood by those who know a little of the planetary theory. Were it not for their mutual perturbations, the planets would move in their orbits according to the simple laws of Kepler. As it is, however, they mutually disturb each other's motions, though the amount of disturbance in any moderate time is but small. Periodic inequalities, as they are called, are thus produced. But, besides this, a repetition of these disturbances gradually produces a change in the orbits in which the planets move, and this change is not, like the other changes, very small, but takes place very slowly. These alterations are called secular. Now Clifford compared acts to the periodic disturbances, while the gradual change of character, resulting from repeated acts, was compared to the secular variations of the orbits of the planets.

I think it may conduce to clearness if you will allow me very briefly to recapitulate the views that I have been endeavouring to put before you.

Physiological observation shows that the brain is largely concerned in the process of thinking as we

know it, and that it must be in a state of activity in order that we may think. At the same time there are immense difficulties in the way of the supposition that thinking is nothing but an action of the material organism. The most probable view seems to be that there is an unknown something, not consisting of ponderable matter, but directing the ponderable matter of which the body consists, and that thinking, as we know it, is the result of the interaction of the two. This unknown something appears to be that on which personal identity depends, and may accordingly be called the ego. Memory would seem to depend on something registered on the ego, the record being capable of being brought into thought by interaction with the material organism. The ego is not destroyed in sleep or in a faint, though thought be for the time in abeyance. As it does not consist of ponderable matter, we cannot affirm that it is destroyed by death, though that causes the material organism to go to corruption; but we might regard it as likely that thought would stop. But if the ego were then put in command, as it were, of a new organism, thought might be resumed; and the consciousness of personal identity might be sustained, as it now is notwithstanding interruption by sleep or by a faint. And if the new organism, whether material or otherwise, were something more refined, and better adapted for mental activity by interaction with the

ego than is the present body, which has the wants of our animal nature to provide for, it is conceivable that the activity of the memory and of the mental powers in general might be vastly increased; it is conceivable that every act of our lives, every act at least in which the formation of character was in the slightest degree concerned, might stand before our memories in full view; that every wrong and every right action might be remembered with a feeling of pain or satisfaction.

It is not for a moment pretended that the suppositions here made can be looked on as established, though they seem to fall in with what we know or have reason to believe; but at any rate they open up considerations as to possible effects of our conduct here which seem deserving of reflection.

In concluding the first instalment of my lectures for the present year, I should like to speak more fully and frankly on a subject which hitherto I have only briefly touched upon.

From the words of the will establishing these lectureships, it would seem that the Founder thought that it was possible for man, by the simple exercise of his intellectual, and perhaps also moral, powers, to create a perfect science of the knowledge of God and of man's duty, without having recourse to what professes to be a revelation made from God to man. At

least the lecturer is forbidden to *rest* in any way on revelation. Indeed, Lord Gifford speaks of the science of natural theology, as he conceived it ought to be and was capable of being made, as perfectly analogous to the sciences of astronomy or chemistry.

Now, in every natural science there is a point beyond which we cannot go, or at least beyond which we have not gone, and very likely see no prospect, at least at present, of being able to go. There may be some slight analogy between natural theology and the natural sciences in so far as this: that something may be done, and that we cannot expect to get to the end of either. But, on the one hand, the methods of investigation are quite different; and on the other, if we restrict ourselves in natural theology to what man can do simply by the aid of his natural powers, I am afraid that we shall get but a very little way. If man's investigation of his own mind is a subject so difficult, and in which so little progress has been made, what must it be as regards any attempts that man can make to explain the attributes of his Maker, and his own relations to him?

Again, if it be true (as most of us, I suppose, believe that it is, resting that belief on what we hold to have been revealed) that man is not in his primeval moral state, but that his moral nature has become corrupted and enfeebled, the task proposed naturally becomes vastly more difficult, and the lia-

bility to error in attempting to execute it is greatly increased.

But I can hardly imagine that the Founder meant his lecturers, who presumably would usually be persons holding the Christian religion, so to throw overboard their religion as not even, if I may so speak, to take hints from it; not even to assume for trial what they may have learned from it, and endeavour to make out whether such things fall in with what they are led to by natural theology, perhaps fill up some gap which natural theology perceives, but is unable to deal with.

In these opening lectures, I have felt myself very much cramped by the provisions of the will, perhaps too slavishly regarded. I am disposed in further lectures to adopt a more liberal interpretation. The lecturer, it may be observed, is only desired not to *rest* on what he holds to have been revealed, and it does not seem incompatible with this requirement to examine into the *reasonableness*, on grounds of purely natural theology, of what he believes to have been taught to man in a supernatural manner. I have barely ventured to do this in these opening lectures; but unless I have reason to think that it would be deemed improper, as being hardly compatible with the Founder's will, I contemplate using greater freedom in this respect in some subsequent lectures.

Here, then, for the present I leave these lectures,

sincerely thanking you for the attention with which you have listened to me, and hoping that you will leniently regard my deficiencies, of which I am deeply conscious, in dealing with so great a subject. I hope to resume my lectures in the spring, perhaps about two months hence. The exact time cannot at present be fixed, but of course due notice will be given.

Lord Gifford advised in his will that besides giving courses of lectures, the lecturers should form special classes for instruction in the manner of ordinary University classes. So far as I am aware, this has not hitherto been done by the Gifford lecturers; and it presupposes the attainment, by natural theology, of the position of a definite science, like astronomy or chemistry. I must confess my own inability so to treat it, and I have doubts as to the possibility of its being thus dealt with. An inchoate science is better promoted by a free interchange of opinion than by the assumption by one man of the position of a professor lecturing *ex cathedrâ*, who is supposed to be a master of his subject, and from whom his class have but to learn. It may be that you have learned something in these lectures, or at least may have had suggested to you some train of thought which seems deserving of being further followed out in your own minds. But I also may have much to learn from you. My various engagements,

and the circumstance that I live so far off as Cambridge, almost preclude much personal intercourse with you. But in default of that I invite any of you who are so disposed to write to me on any of the subjects on which I have touched. I can promise you that the letters will not be neglected, though my engagements forbid me to promise speedy replies. I may mention that my normal address is Cambridge. I regard this invitation as a substitute for what was advised by Lord Gifford, that his lecturer should form a class; a substitute which, while departing from the letter, may, I hope, do a little towards carrying out the spirit of the advice contained in the will of that earnestly-minded man. Having said this, it remains only for me now to say, Farewell for the present.

LECTURE V

Examination of the reasonableness of what professes to be revealed permissible—Mind involved in the origin of the system of nature—Origin of man—Theology not concerned with the mode of creation—Original state of man—Legitimacy of motives resting on a future state—Duty of acting as supposed to be right—Importance of a due balance between hope and fear—The conferring of immortality demands a power above nature.

FROM the terms of the bequest by which these Lectureships were founded, it appears, on the one hand, that Lord Gifford was deeply convinced of the supreme importance of a true knowledge of God, "Whom truly to know is life everlasting," and on the other, that he believed that a true knowledge of God could be attained to by the simple exercise of the natural powers of man's mind, in a manner similar to that in which the physical sciences have been built up. Accordingly, he wishes his lecturers "to treat their subject as a strictly natural science . . . without reference to, or reliance upon, any supposed special exceptional or so-called miraculous revelation."

I do not think it is necessary to take these words in any extreme literalism. If I may conjecture from

the language of the bequest, taking one part with another, I should imagine that there may have been something of a revulsion in his mind from teaching of perhaps too narrow a character, of a kind in which wide conclusions are drawn from particular expressions; and that he might not object to an examination, in their broad features, of some things asserted on the strength of what professes to be a revelation made from God to man, so far, at least, as to inquire whether they so fall in with what our own reason approves as to receive confirmation thereby.

To begin, then, with the most fundamental proposition of all, it is asserted or assumed, in what is commonly held to be a revelation, that the system of nature did not come to be what we find it by a sort of fortuitous concourse of atoms, but was the outcome of the will of a designing Being. This so falls in with what man is led to by his natural mental powers that the idea of a God seems to be pretty well universal in the human race, cultured and uncultured nations agreeing in this. I will not, however, dwell further on this point, for I have gone into it at some length in the former portion of these lectures; I merely allude to it here that it may not be passed wholly by.

The changes which we see taking place in the inorganic world have, in great measure, been reduced to order, and shown to be the necessary result of

certain invariable laws of a simple character, so that, given the laws, and the initial state with which we start, the subsequent changes follow. And if there are still some cases in which this cannot be done, the analogy of those in which it can be done and has been done leads us strongly to the belief that similar laws are open to our discovery by methods of investigation similar to those by which the laws already known have been arrived at.

When from the inorganic world we turn to the world of living things, we enter a region of which we know comparatively little. That is to say, though in many cases we can trace sequences, we are not able to say how the consequent results from the antecedent, whereas, in relation to inorganic nature, the process can in many cases even be made the subject of mathematical calculation. Still, as I said, there is abundant indication that even in relation to the phenomena of life stated laws exist. This holds good even of that most wonderful property which living things, animal and vegetable alike, possess, that of reproducing their own kind in apparently endless succession. The tree yields fruit whose seed is in itself upon the earth, and this power is represented as involved in its original creation.

The amount of variation which we actually observe from parent to offspring, even for very many generations, is but small compared with the differ-

ence between different forms of living things, be it animal or vegetable, and does not seem to show indications of constant progress in the same direction. It is true that the form is to some degree dependent upon the environment, and if a given form be transported into a different environment, a certain amount of progressive change may take place until the form is become that which is normal to the new environment. But the amount even of this change is but small compared with the difference between one kind of living thing and another.

But the life of man, and even the whole period of authentic history within which scientific observations were made, is but small compared with the time which the records of the past which are preserved to us in the earth's strata, show must have elapsed since living things first appeared upon the earth. If the comparative smallness of the difference between parents and descendants when contrasted with the difference between one form of life and another be due to the limitation of the time over which our observations extend, it is conceivable that by availing ourselves of the indications which fossil remains afford of the kind of forms of life which inhabited the earth in bygone ages, we might get evidence of continuous transmutation from one form of life to another even remote. I do not mean that in order to establish such transmutation we should demand

that one shall be traceable from another as offspring from parent, but that at least a continuity should be traceable from one to the other by a path partly, it may be, ascending and partly descending. Do the records of the past give evidence of, or render probable, such a continuity of passage from one form to another remote from it?

This is a subject on which I would wish to speak with diffidence, for I feel that it is only those who have made biology, including palæontology, a special study who are in a condition duly to weigh all that science has to say on one side or the other towards affording an answer to this question. Still even one whose scientific studies have lain in a different province, and who has only given some general attention to this subject, can hardly fail to have formed an opinion. To me, I confess, it seems that the gaps which are found in any such attempt to connect remote forms are too great to be bridged over. At the same time there appear to be sequences of allied forms which seem to indicate the operation of some natural law according to which changes exceeding in amount those which we are actually able to witness may have taken place.

As regards, however, any moral consequences to be deduced from a supposed origin, it is the human race that we are mainly concerned with. It seems to me that the question of man's origin is closely

bound up with questions of the highest importance regarding the character of God, the duty of man and his future prospects, and with ethical considerations arising from those prospects. And though, of course, under the limitations above referred to these questions can only very imperfectly be handled, yet it may not be without use to examine how far any views which we may have been led to entertain are agreeable to reason in the most extended sense of that term.

As may be gathered from what I have already stated in my earlier lectures, I cannot help regarding it as very important which of two alternatives we adopt as to the origin of man—namely, whether we believe that he originated in a special creative act, or what at least we can only picture to our minds as such, or else came to be what he is by a vast series of separately infinitesimal changes whereby he was derived from some lowly organism; some form of living thing to which we cannot attach the ideas of intellect or responsibility.

I will not repeat what I have said as to the reasons for the adoption of the former of these alternatives; suffice it to say that while the arguments for a continuous gradation derivable from actual observation are immensely short of what would be required to render the conclusion even so probable as to draw us towards its adoption, the moral diffi-

culties which it presents are of a most serious character.

But in adopting the former of the two alternatives we must be careful not to demand more than fairly belongs to it. We are not in the slightest degree committed by natural theology to the assumption that the first man was formed directly from lifeless matter. All that we have occasion to assent to is that in some way or other he originated by the design of a Power capable of designing, and able to execute that which was designed. How the end was accomplished, is a question into which we are not called on to enter. It may perfectly well be that the mode was one involving a general similarity of plan between the body of man and that of other mammals. The fact of the existence of such a general similarity of plan by no means justifies the assumption of a continuous change taking place by the mere operation of what are regarded as natural causes.

But if we allow that man took his origin by a creative act of some kind, the question fairly arises, Is his condition such as might be supposed answerable to such an origin?

Now here it may be freely conceded we meet with difficulties to which natural theology alone can offer but very imperfect answers, if any at all. Take for one thing the sad contrast between something

within him that tells him that he ought to act in such and such a way, and the way in which over and over again he does act in spite of his feeling that he ought not. Should we not have expected beforehand that, in a being originating in an act of creative will, there would have been full harmony between the inner guidance and the course of his life? Again, consider the contrast between his powers and what appears to be his destiny. His powers seem adapted for a continued progress to which we do not see a natural limit, but after a course of at the utmost a few decades of years he apparently perishes outright.

As regards the first difficulty, to my own mind it is vastly lightened if we may believe that man's present state does not represent his state from the first; that originally there was not this discord between the voice within which tells him what he ought to do or refrain from doing and the actual course of his life; but that, by a misuse of that freedom of choice which belongs to his nature, opposition arose between what he ought to do and what he actually did; and that once obedience to the law impressed upon the heart was broken through, it could not afterwards by natural means be restored; for it stands to reason that the resistance to temptations to do wrong which can be brought about by any natural means cannot be so strong when once it has been overcome as it was originally; and if the

initial strength was insufficient, much more must be the strength left after a defection from duty.

Closely connected with the first difficulty is that arising from the discrepancy between man's power of continued progress, and the cutting short (to all appearance) of opportunity for such progress entailed by death. If we may suppose that death was not inherent in the original constitution of man, or which comes to much the same that means were within his reach, by the use of which he could prevent it, but that he became subject to it when he fell from the original condition of entire uprightness, the difficulty is, if not removed, at any rate greatly lightened. If it be said such an attempted solution does not belong to natural theology, I freely allow that it does not. It is a solution we probably should never have dreamt of merely by the exercise of our reason. But it does belong to the province of the understanding to judge of the reasonableness of the solution, supposing that we have reasons independent of natural theology for thinking that it may be true.

I say that if we accept such a supposition, the difficulty arising from the apparent incongruity between man's capacity for continued progress and the cutting off, to all appearance, of all opportunity for such continued progress which death brings about is at the least materially diminished. For what would have been the result, in man's fallen condition, of an in-

definite continuance of his life? Progress may be a progress in evil as well as a progress in good; even an increase in real knowledge may be turned to ill account. And progress even in a right direction remains imperfect, being marred by that want of full agreement between the dictates of what is felt to be right and the actual course of the life. Hence it is well conceivable that a continued existence in our earthly life, taking it all in all, might not be a boon, but the reverse.

But it may be said, Is not the idea of such a continuance purely chimerical? Are not the lives of all animals terminated by death, and as man is an animal, must it not be the same with him? What is the use of speculating as to what might have been under a supposed condition as to man, for which we have no analogy in animated nature?

The reply to this is that, so far as we know, man is unique among animals in the possession of an intellectual and moral nature. It may be that, according to his original condition, means were provided in connection in some way with his unique moral nature, whereby he was exempted from the decay and death to which all the rest of the animal kingdom was subject; but that with the loss of his original moral condition he ceased to be in possession of those means, and became subject to decay and death like all other animals.

And as it is conceivable that, in connection with his unique moral nature, there may in his original condition have been open to him an avoidance of decay and death, notwithstanding his animal nature, so is it not conceivable that, animal though he be, death may not necessarily be to him a termination of all living existence? More especially, if by any means a restitution is possible to the original condition of complete uprightness which we have supposed, is it imaginable that therewith there might be an introduction into a condition of living existence which is not subject to be cut off by death, as to all outward appearance is the case with our present mode of existence. And if it be objected that there is no indication that any of our senses enable us to perceive of any such prolongation of living existence, it is to be remembered that, on the other hand, we do not witness such a condition of perfect uprightness; the utmost we see is some sort of approach towards it, marred, however, by many a failure and imperfection. It may be that such a great moral change as we have been supposing demands a breaking up of man's animal nature, and some sort of reconstruction lying as much outside the ordinary course of nature as we have been led to believe that his original creation lay. And if this be so, that there should be no natural indication of survival of the stroke of death is only what was to have been expected *a priori*.

It is obvious that a belief in the existence of some state of life beyond the dissolution of man's animal frame is calculated to exercise a powerful influence on his conduct. It did so to no small extent even in ancient times with nations who had no revelation to guide them. And the way it in such cases operates appears to be this. There is a voice within which approves or condemns us according as we act conformably to what we feel to be right or wrong. This leads us to regard ourselves as being under the rule of a righteous Governor of the world, and to look forward with hope or fear to what may happen to us after the dissolution of the animal body. In default of any definite information on the subject, the active mind of man draws a picture out of its own imagination, conformably to its instinctive feeling of right and wrong, of some condition on which the mind can dwell, instead of wandering about among ideas which can take no definite shape. Thus, for example, the ancient Egyptians had a pretty definite picture of what they supposed would take place. It is needless to say that we believe that we have a clearer light to guide us than was open to them; but even to us there is a vast deal about a future state of which we must for the present be content to remain in ignorance.

I have said that belief in a future state is calculated, through the hopes and fears which it entails,

to exercise a powerful influence on our conduct. But it may be objected, Is not this a low and unworthy motive to set before us? Ought we not to do right simply from the love of right, quite irrespective of consequences? Might it not even be better that we should not be tempted to attend to such motives at all? Are they anything better than a refined form of selfishness? Would it not be more noble to throw overboard all belief in, or at least all attention to, a life after death, and do right simply from the love of right; to act for the good of our fellow-creatures from purely benevolent motives?

These questions are so far the outcome of right feelings that they demand an attentive consideration. I think, however, that when they are fairly scrutinised, it will be found that the disparagement which they indicate of any influence on our conduct of hopes and fears in connection with a future life rests upon fallacies.

First, as regards the charge of selfishness. Attention to what is for one's own good does not constitute selfishness. It may be for a man's good that he should deny himself some present gratification in order to lay by money for his old age, to provide for a time which may probably be coming when he will no longer be able to work for his own support or that of his family. Thrift is not selfishness, though it involves consideration for a man's own interest. It

is only when we disregard the good of others for the sake of our own advantage that we are chargeable with selfishness. Hence, if we are stimulated to do what is right by the thought of future consequences to ourselves, it does not follow that in so acting we are guilty of selfishness. It would only be on the supposition that by such a course of conduct we were injuring others while benefiting ourselves, that we should be fairly open to the charge of selfishness. But when I say injuring others, it must be understood that it is in relation to society as a whole. A right action, though beneficial to society as a whole, may entail suffering on an individual, as when a malefactor receives punishment, though even as regards the malefactor himself the punishment, though apparently injurious to him, may really even to him be beneficial in the long run. It is only on the supposition that a right action was injurious to society in the widest sense that the question could arise whether the performance of it, in so far as that performance was influenced by a consideration of the actor's own advantage, was fairly chargeable with selfishness. But to suppose that an action right in itself can lead in the long run, and when everything depending on it is supposed to be taken into account, to injurious consequences, seems to me to be impugning either the power or the goodness of the Ruler of the universe. We need not, therefore,

attempt to follow out the consequences of such a supposition. It would be something like spending a lot of time over following out the consequences of the supposition that the squares constructed on the sides of a right-angle triangle exceeded the square on the hypotenuse.

But I must here answer one or two possible objections. It may be said that sometimes good comes out of evil, and therefore we do not know but that in acting rightly we may be hindering some greater good which might have arisen if we had acted differently.

Now it is quite true that sometimes beneficial results do follow indirectly from wrong actions. For example, the character of a good man may be strengthened and improved by the suffering which he is called on to undergo in consequence of the action of those who unjustly oppress him. And, indeed, the only solution of the mystery of the existence of evil, and its being suffered to continue, seems to be that thereby an exaltation of character is rendered possible, and qualities drawn out for which otherwise there would not have been any exercise. But these results are indirect, and such as cannot be foreseen. For example, if A be tempted by B to do wrong for the sake of some apparent advantage, it may very well be that in case he resists the temptation his character is strengthened

and improved by the trial to which it has been subjected. But besides that (by hypothesis) that was not B's motive in subjecting him to it, the other alternative is open, and for aught that B could tell, A might have yielded to the temptation. I say, then, that the good effects which sometimes come about from evil actions are such as could not be foreseen, and are exceptional, and even when they do occur we are unable to say but that greater good might have resulted from an opposite course of action, whereas right actions do, as a rule, lead to visibly beneficial results; and even if we fail to see them they may very well exist, though they are hidden from our view.

Hence, when a man is impelled in two directions, the one towards what he feels to be right, though the following of it may entail some suffering, or the forgoing of some advantage, the other towards what he feels to be wrong, there is no occasion that he should separate the consideration that the path of duty is, as he believes, that which is best for himself in the long run from the consideration of its effect upon mankind as a whole. The whole of the consequences of his action it is beyond his ken to calculate, but he may rely upon it that the right course is at any rate more likely to be for the welfare of mankind than the opposite course.

Hence the question does not really arise of pitting

his own highest good against the welfare of mankind in general. The two go hand in hand, and we may say of them, "What God hath joined together let not man put asunder." There is no use in puzzling ourselves as to what might be our duty or our moral condition in a purely imaginary world.

Hence, then, I take it that a consideration of what is for our own ultimate good as a motive to right action is not to be condemned as if it were mere selfishness. I grant that if it stood by itself it would be quite compatible with a character which was hard and unloving. But as belonging to Christian teaching it does not stand by itself, but forms one item of a complex whole.

I cannot help thinking that there is somewhat of a latent self-assertion lying at the bottom of the inquiry whether it is not selfish to be influenced by a consideration of what is for our own final good. We think of ourselves as masters of the situation, rather than as falling in with a plan which is arranged for us. When we think of ourselves as all children of a common Father who wills our highest welfare, and that we should be at peace and in harmony with one another, the wishing for what He designs for us does not carry with it any idea of selfishness. We ourselves are as much objects of His care as are others, and if we wish for the welfare

of mankind in general, there is nothing corrupt in including ourselves in the number.

Take for illustration the feelings of a little child towards its parents, whom I will suppose to be good, right-minded persons. He looks up to them, depends upon them, feels assured of their love to him, and of their wishes for his welfare. It may be they hold out as an inducement to him to act rightly the hope of something that they will give him if he acts rightly. He receives this as from them, and the gift helps to increase his attachment to them, provided at least that the thing is not overdone, so as to lead him to expect it as a matter of right, or at least as a matter of course. Subject to the same proviso, if from acting contrary to the intentions of his parents he fails to obtain it, he feels that he has only himself to blame, and the loss does not cause him to doubt his parents' love to him, or prevent him from loving them. In a similar way the hope of receiving good from God if we seek to please Him, provided we do not look on it as a right but as His gift, instead of nourishing selfishness draws our hearts towards Him.

I have spoken of certain difficulties arising from the circumstance that occasionally a wrong action may, apparently at least, bring about a useful result, and a right action, on the other hand, a result which seems to be disadvantageous. I have pointed out how ill qualified we are to judge whether the conse-

quences are really advantageous or the reverse, as they seem to be, since to trace the complete chain of consequences is quite beyond our powers. But the difficulty may oftentimes be apparent only, and may arise from our making a mistake as to what the right course of action really is. The imperfection of our knowledge, and still more the imperfection of our obedience to what is right, may often cause us to suppose that to be right which in reality is wrong. And accordingly a real disadvantage arising from an action which we deemed to be right may really be chargeable upon the mistake we made in supposing that it was right.

The possibility of this connects itself with a question of some interest—Is it right to act in a manner which we mistakenly suppose to be wrong, and is it wrong to act in a manner which we mistakenly suppose to be right?

It seems to me that the answer to this question must be, as regards the action itself we are bound to act according to what we think to be right. But if we act wrongly, thinking that we are acting rightly, though we may not be to be blamed for the act itself, it does not follow that we are exempt from blame in all that concerns it. We are responsible for all that is involved in the formation of our opinions; and when an erroneous opinion has been formed as to a matter of duty, I think it is generally

if not always the case that something has been wrong —I mean morally and not merely intellectually wrong —in the steps by which that erroneous opinion has been formed. Such a great number of conditions involving the exercise of choice, many of them perhaps forgotten, are concerned in the formation of an opinion, that the person himself who has entertained a wrong opinion may not perceive wherein he has done wrong in the steps that led up to it; much less can a different person apportion to him the blame that he really deserves.

Accordingly, we should always be tolerant towards those who act as they think rightly, even though we ourselves should be thoroughly convinced that the action is wrong. The action itself and all that led up to it, taken as a whole, may be wrong, but it may be quite beyond human power to apportion the blame.

But though we should be tolerant in our estimate of the blame, it does not therefore follow that such actions should be left unpunished. The welfare of society may demand that they should be repressed by punishment, and the severity of the punishment may even seem to be out of proportion to the moral gravity of the offence, or at any rate to such moral obliquity as can be proved. In so far as the punishment may be out of proportion to the moral fault, it is to be looked upon as the man's misfortune rather

than as a just requital for his misdeeds, in much the same way as we look on an accident that happens to a man who is engaged in some dangerous calling, which, nevertheless, it is important for the interest of society should be carried on. Thus in time of war it may be necessary for the safety of an army that offences against military rules should be punished in a manner quite out of proportion to the moral fault committed.

I have referred to the advantage for a right course of life of hopes and fears connected with a possible future state of existence. But it is important that there should be a due balance between the hopes and fears. What that balance should be, it is not for man to decide; and mischief may be done by his taking it into his own hands to apply either motive exclusively, or in undue excess. Doubtless the formation of a character in which right is done from motives of love, and the free choice of right, is the goal to be aimed at; and perfect love, it is said, casteth out fear. But perfect love implies perfect obedience, and while that is imperfect there is need that motives derived from hope should be supplemented by fear of the consequences of doing wrong. Without that we might become like spoiled children, and think very lightly of the wrong things that we had done. But as it is said that perfect love casteth out fear, so I think it might equally be said that perfect fear

casteth out love. We can comprehend this from what we see in ordinary life. The captain who commands the loyal service of his crew is not the martinet who punishes with the utmost severity the most minute dereliction of duty, thinking to keep the men to their work because they dare not do otherwise, though they fain would escape if they could from the thraldom they are under; nor of course, on the other hand, is he the indulgent easy-going man who preserves no discipline. The commander who best secures the love and obedience of his crew is the man who treats them with kindness and firmness duly apportioned.

It may seem useless to dwell on this which is so very obvious. Yet I do not think that it is by any means so superfluous as might at first sight appear. For, unless I greatly mistake, there is a tendency in some quarters to think that it is impossible to exaggerate the terrible consequences of wrong-doing to the wrong-doer himself; that the more frightful the picture we draw the better, in order that men may thereby be made the more afraid to offend. The punishment is even represented as partaking of the infinitude of the Being against whose laws the offence was committed; and Leibnitz long ago attempted to justify in this way the theory he was supporting, though I do not think that his attempted justification is generally allowed to have been successful.

Now it may be perfectly true that, as a rule at any rate, men think far too little of the ill consequences, even to themselves, of the wrong which they do. But it by no means follows that therefore it is well to represent those consequences in the most frightful possible light, like throwing on plenty of mud in hopes that some may stick. For, in the first place, such exaggerations, involving error as the very name implies, may introduce difficulties of belief which may cause the entire statement to be disbelieved. And, in the second place, supposing even that the statements were believed, it by no means follows that they are calculated to bring about the end we ought to have in view; nay, they may be even hostile to its accomplishment. For it is not the turbid stream that we are to seek to clarify, but the fountain from whence the stream issues that needs to be cleansed. The mere repression of wrong-doing through fear of punishment is not enough. It may make a man a more useful member of society, just as a horse may be trained to draw burdens and so to become useful to man. It may even be, and doubtless is calculated to be, beneficial to the man himself as guarding him against greater excesses, and placing him in a more advantageous position for something better. But fear, so long as it stands alone by itself, seems to have no tendency towards that renovation of the will which leads a man to do

right because he loves the right. Nay, when excessive, it may even be adverse to his attainment of such a condition, as being inimical to love.

Natural religion can but point with uncertain hand to the probability of an existence of some kind beyond the grave. The strongest argument for it, the only argument which to me seems to have any weight at all, is what I may call the moral argument. By the moral argument I mean that derived from the consideration that something of the kind seems to be required to satisfy our conviction of the justice and goodness of God. But if man, by the exercise of his natural powers, can only reach some more or less probable expectation of a future state, it stands to reason that he could form no assured idea of the conditions of such a state, supposing that there is one. Nevertheless, there are some considerations bearing on its asserted moral condition which so fall in with what we might expect as to lend confirmatory evidence to what, on other grounds, we might be disposed to accept as true.

It has already been noticed that the difficulty arising from the fact that, on the one hand, we see in man (the individual man and not merely the human race) an apparent capacity for indefinite progress, while, on the other hand, the opportunity for such progress is, to all appearance, cut off by death—that this difficulty, I say, is greatly mitigated, if not even

removed, provided we may suppose that man is not now in his original state, in that moral state for which his moral and intellectual nature was adapted, but that having fallen from it through misuse of the free will with which he was endowed, he became subject to death like the lower animals.

If this be so, it seems to stand to reason that restitution to a condition in which he would no longer be subject to death would only be possible, or perhaps I should rather say permissible, on condition that in some way means were provided whereby the discrepancy between the inner voice of duty and what he actually does should be finally removed, and man brought back in that respect to what we have supposed his original condition to have been. And as we see by experience in this life, in which alone we have any experience to guide us, that character may be developed in a downward as well as an upward direction, in a direction tending from as well as in one tending towards such a condition as we have supposed, it may be that the means of entry into that higher condition, analogous to what we have supposed man's original condition to have been, will not become actually effective for the whole human race indiscriminately, but only for some; and, further, that whether they do or do not so become effective may depend on the tendencies developed in man's present life.

It follows therefore that, so far at least as our own ideas of what appears suitable may be a guide, the prospect of attainment of a condition in which man's capacity for continued progress shall not be cut short by a death of some sort, is dependent upon the development of a character here of such kind as to lead in the desired direction under altered and, as yet, unknown conditions.

I say, under altered and unknown conditions. For we are not to think of a future condition of being as if it were merely a continuation of the present; as if we recovered from a faint and then went on just under the same conditions as before. Truly, such a supposition would be disheartening, and might well lead us to despair of ever attaining to such a moral condition as we have supposed. For even the best men are far from having reached that condition of full harmony between what they do and what they feel they ought to do that we have been considering. The prospect of a battle always to be maintained, victory never won, is not an inspiriting one, not one calculated to sustain the soldier in his conflict.

How that brighter condition at which I have hinted is to be brought about, is a question which it lies beyond the power of natural theology to answer. Yet some consolation may be derived from considerations which show that we might expect it to lie

beyond her. For, if it were otherwise, we should then naturally expect to be able to explain, or at least partially explain, how it was to be effected; and if we did not see our way towards any such explanation, our hopes that such a thing could come at all might be seriously shaken.

From this point of view it is even consolatory that outward appearances give us no indication that death is other than what it seems to be, the abolition of living existence. For then, if there is to be a future life at all,—and natural theology gives us some grounds for expecting it—we must look for it to a Power above what we call nature, to a Power to which we must refer the first inception of life on earth, and the origination of the human race. If the forfeiture of physical life depended on moral conditions, and its restitution demands what is tantamount to a creative power, it well may be that the moral restitution we have been considering, the possibility of which formed the motive (if such a word may reverently be used) for the restitution of physical life, itself too involves the exercise of a similar power. But if so, we have no reason for supposing that the *modus operandi* would be one which it would lie within our natural powers to explain.

And even when from natural theology we turn to what we regard as a revelation made from God to man, we find indications of the mode whereby this

moral restitution is to be effected that lie beyond and above what we can follow. Yet the partial glimpses which we get of what the restitution involves fit in with what we feel to be right, or observe in the government of the world, in such a manner as to lend increased credibility to what claims our acceptance on other grounds; and if in certain instances the reverse appears to be the case, it arises, I think, from the restless mind of man having been over-desirous of prying into mysteries, from his having endeavoured to make a sort of philosophical system out of propositions whose mutual dependence it is above our powers in our present state to explain.

I hope to follow out this subject somewhat further, but I must leave this to my next lecture.

LECTURE VI

Natural religion fails to satisfy the craving for full conformity to what is right—The attainment of such a state may require supernatural means—The fault of the guilty may entail suffering on the innocent—Moral restitution compatible with freedom of will—Though good may arise from evil, the right course is the best—Moral renovation compatible with freedom of choice—Benefit may arise from uncertainty as to what is right—Professed explanations of what is above reason dangerous—Free will and foreknowledge—Threefold presentation of God.

We all are keenly sensible of the grievous defects of our conduct from the standard of what we feel it is our duty that it should be. Now, what sort of prospect, if any, does natural religion hold out to us of being able to put an end to this state of things, and bring our whole course of life into full conformity with what we feel to be our duty?

The only prospect, as it seems to me, which natural religion can hold out of an attainment of the desired end is by urging us to put out all our strength, all our resolution, in following that which is right. Apparently it is quite within our reach, for we are innately conscious of the freedom of our wills to do or not to do. But experience shows that, with all

our resolution, we constantly more or less give way. And, indeed, on the suppositions to which we have been led as to the original state of man, we could hardly expect that it could have been otherwise. For if there were a time when man followed the leading of what he felt to be right and lawful, and yet subsequently inclination was too strong for him, and he swerved from the path of duty, it stands to reason that his powers of resistance would be weakened thereby, so as to be unable to act as an effective barrier against the commission of wrong. Natural religion, then, can but leave man in a state of hopeless thraldom, seeing what is right, aspiring after it, but too weak to stem the opposing tide, so as always to follow it. For it is not enough sometimes to do right and sometimes not. When we do wrong conscience still condemns us for so doing, so that even in spite, it may be, of some progress towards the right, conscience still condemns us for the wrong, and we feel as far off as ever from that full satisfaction to which we aspire, which would arise from perfect harmony between what we feel to be right and what we actually do.

Now, if the exercise of a power above the ordinary course of nature be required in order that death may not be what it seems to be—the extinction for ever of living existence—is it not conceivable that there may also be means provided for the renovation of man's

moral nature equally transcending what, as belonging to our present moral nature, we know by our natural reason? If so, we need not expect to be able to find them out for ourselves, and it may well be that in our present state we are not able to comprehend them, but only to get some glimmering notion of their general nature. A person born blind could form no adequate notion of the sense of sight; but if it were possible that he could gain sight as the result of an operation, he would then understand what it meant. May there not be something analogous as regards man's introduction into a condition in which there will be full conformity between the uniform tenor of his life and what he feels to be right?

And yet, to keep to our illustration, as a person born blind, on being informed about some of the properties of light, might be able to do something towards their investigation, so it is conceivable that, little as we can comprehend from experience of the actual conditions of a state in which there would be complete harmony between what is felt to be right and what is actually done, or of the means whereby that condition is brought about, there may yet be features about it which harmonise with things of which we have experience in the course of the world.

We know that even in this world faults and crimes oftentimes bring evil consequences in their train; as, for example, when a man undermines his

constitution by drunkenness, or reduces himself to penury through extravagance. It may happen also that the evil consequences which a fault committed by one man is calculated to bring about may be averted in a manner which entails suffering on another.

For example, suppose that a general entrusted a soldier with the duty of keeping watch to guard against a surprise by the enemy, but that in consequence of the man's deserting his place, whether through cowardice or slothfulness or the attraction of something else, the enemy succeeded in taking possession of a post which gravely threatened the safety of the whole army. It may be that, in order to avert the threatened disaster, it was necessary to move up troops to attack the post occupied, and dislodge the enemy; and that in the attack some were killed or wounded. It may be that, had this not been done, the delinquent would have perished with many of his comrades, but that through the attack safety was procured for the army generally, the delinquent being included in the number.

In such a case we see that the fault of one man entailed suffering, not upon himself (of course I am not here referring to any compunction that he might have felt), but upon others who were not in any way partakers of his fault, and that through their suffering safety was procured both for the delinquent

himself and for others. But in ordering the attack it was not the object of the general to inflict punishment upon the attacking party in lieu of the man who had brought the mischief about, but to avert the disaster which the delinquent's dereliction of duty was calculated to bring about; and if it were said that the general had punished one of the men wounded in the attack instead of the man whose misconduct had rendered the attack necessary, it could only be by a mode of speaking which is highly metaphorical, so much so as to be calculated to run the risk of leading to misapprehension.

In the case we have imagined it is conceivable that the man whose neglect of duty had rendered necessary the attack, might be so struck with the tremendous consequences of what he perhaps at the time looked on as a very trivial dereliction of duty, and especially with the suffering which his fault had been the means of bringing on a comrade who was in nowise concerned in it, that he turned with horror in future from any temptation to neglect his duty, and became one of the best and bravest soldiers in the army. And the more the man had previously attended on the whole to his duties, the more likely would it be that such would be the result. But it is conceivable also, if the man were previously one who cared only for himself, and did his duty, so far as he did do it, only for fear of the cat, that he might con-

gratulate himself on the safety of his own skin, and care nothing for what had happened; and so the very exemption from punishment for his fault, and the knowledge of the mischief that that fault had caused, might leave him a worse man than before.

Now, if it be asserted that the restitution of man to a condition so far analogous to what we have been supposing to have been his original condition as that in both alike the government of the life was always in accordance to what was felt to be right or lawful, could only take place through a method which involved suffering to one wholly innocent,—if, I say, this be asserted, there is nothing in it in contradiction to what we see going on in the government of the world; nothing, therefore, to lead us to a rejection on *a priori* grounds of the proposition asserted, as being contrary to what we believe of the character of God. And we see, further, that it is conceivable that the method adopted should have the designed effect in the case of some and yet fail in the case of others.

Furthermore, it is conceivable that the restitution supposed may be effected, not merely without any interference with the freedom of the individual will, but even without that sort of semi-compulsion which arises from the fear of the consequences of doing wrong; that the right may be done from love of the

right, and so complete obedience may be reconciled with complete freedom.

I am forbidden by the terms of the Foundation to rest upon a supposed revelation made by God to man. But I think it perfectly allowable to point out the analogy between what is asserted on the strength of what professes to be such a revelation and what we can ourselves observe in the ordinary government of the world. And I think the bearing of what I have recently been saying on what I presume most of us accept as having been, as we believe, revealed, rough as the analogy may be, will not fail to be perceived.

In our study of nature we are most forcibly impressed with the uniformity of her laws. Reasons have indeed been brought forward why we should believe that something more than the operation of those laws, or rather of such of them as are open to our observation and experiment, is necessary to account for the whole system of nature such as we see it. But none the less is it true that those uniform laws are, so far as we can judge, the method by which the ordinary course of nature is carried on. That is to say, if we recognise the ordinary course of nature as designed by a Supreme Being, that it is according to His will that the course of nature should, as a rule, be carried on in this regular methodical manner. We should expect, therefore, to

find the operation of regular laws in the moral, no less than in the physical world, although their existence is less obvious on account of the freedom of the will.

Now, by the very idea of the term, that which is wrong, by which is meant not necessarily that which is supposed to be wrong, but that which is rightly supposed to be wrong, is something which is opposed to the will of God. But as we are bound to suppose that what He wills is, when everything is taken into account, the best, it follows that though good may be brought about through evil, nay possibly even a kind of good that could not otherwise arise, yet the balance of good when everything is taken into account must be on the side of the good. What I mean is this. Suppose a man has in some particular matter just two alternatives to choose between, and one is judged, and correctly so, to be right and the other wrong. If he choose the wrong it is quite possible that some good consequence might result from his action which would not otherwise have come about. But we are bound to suppose that when all the consequences of following the two alternatives are taken into account, the balance of good in the total results must be in favour of the adoption of that one of the two alternatives which is right.

Hence though the extreme ill consequences which a wrong action is calculated to bring about—ill consequences suppose to the wrong-doer himself—may

be averted, and he may possibly be led in the end to do only what is right, it by no means follows that his condition will be as high as it might have been if he had chosen that one of the two alternatives which was the right one. For while actions depend upon an exercise of the will, taking the word "actions" in the widest sense, including for instance the control of the thoughts in so far as it is voluntary, character is something more than this, and is not to be formed in a moment by an act of the will, but is ordinarily a plant of slow growth, gradually formed as the result of repeated exercises of the will, though grafted on the stock of congenital dispositions, which very probably are in part hereditary. Thus two men might conceivably absolutely avoid everything that was wrong, following completely that which was right (though I do not say that that is a condition which is ever attained in the present life), and yet one might be much superior to the other in the positive elements of character; one, for instance, might be a man of warmer affections than the other, of a more loving and a more lovable character. And one bad effect, as it seems to me, of an exaggeration of the final evil consequences of evil-doing to the evil-doer himself is that it leads him to concentrate his attention on avoidance of these extreme evil consequences, and think that if he is safe from these the rest does not matter.

I have spoken of the choice between two alternatives, one right and the other wrong. But in most cases when we have to exert our wills there are a variety of courses open between which to choose, and the question arises, Is there only one of these right, the others differing only by being more or less wrong, the wrongness of some of them, it may be, consisting merely in the fact that they are alternative to, and therefore their adoption excludes, that one course which by hypothesis is said to be right? Or on the other hand, may two or more of those courses be equally lawful, so that the man may do just as he likes as to which he will adopt?

Now, as far as man's laws go the thing is plain enough. I go out suppose with some money in my pocket, and I am free to spend some of it in the purchase of a book, or of some other article for use or ornament, and the law of the land does not call me over the coals for doing the one or the other. Innumerable instances occur in which a man may do this or that, and nobody thinks of blaming him for exercising his option in the one way or the other.

But there are cases in which though the law cannot touch him some of his fellow-creatures may reasonably think him to blame. For example, he may have others depending upon him, and he may be tempted to spend more than is reasonable in the

purchase of some article of mere luxury. In this case society, in so far as they were acquainted with the case, would blame him, and he ought to blame himself.

But there is a voice within more searching in its demands than the law of the land or the requirements of society. There may be reasons for or against this or that course which are known only to the man himself who is called on to make the choice. It may happen, for instance, that some course is perfectly lawful in itself, but cannot be followed without the neglect of some duty which the man feels that he ought to be doing.

But though the range of lawful choice is at any rate thus narrowed, the question still remains, Is there any such range at all? In other words, Is there such a thing at all as a choice between two alternatives which is lawful *in foro conscientiae*? Is there not in every case some course which alone is the best, which therefore alone is right if a man would follow completely the will of God?

I think a strong teleological argument may be brought to bear on this question. The possession of any power is on teleological grounds an indication that there is *some* intended lawful exercise for it. Of course the power may be abused; but the possible abuse of it is no proof that there is no lawful use for it at all. Now, we are conscious of the possession of

a freedom of choice, and we may therefore, I think, legitimately infer that it was intended that there should be a lawful exercise of it. But this could not be if on every occasion there was but one of all possible courses which was right. On that supposition the only use, so far as one can see, from a moral point of view of freedom of choice would be to serve as a means of temptation—temptation, that is, in the sense of testing. It is as if we should suppose that man was endowed with eyes in order that his obedience might be proved by his always keeping them shut, or with ears that he might keep them stopped up, lest he should ever be charmed by the sweetness of music. I think then that the conclusions of Natural Theology on this problem are in full accord with common sense, and with the way in which we commonly regard it, in saying that the answer to the question must be that there *is* such a thing as a choice between lawful alternatives; that there are cases in which in deciding between two alternatives we may lawfully choose that which we like best.

But the bounding line between what is lawful and what is unlawful is oftentimes indistinct and difficult to make out. It seems as if in the question of choosing between two alternatives there were in different cases a continuous gradation between an instance in which one course was plainly and palpably right and the other wrong, and an instance in

which in choosing between the two on the ground of rectitude there was merely a suspicion of an infinitesimal preference for one rather than the other.

I think a person might oftentimes feel a wish to know plainly and for certain whether out of two alternatives one was right and the other wrong, so that he might adopt the right, or whether both were alike lawful, so that he was free to choose whichever he liked best. But it does not follow that it is best for him that the distinction should always be thus sharply drawn. His aspiration after such a state may be taken indeed as an indication that there may be such a condition designed for man. And we can readily conceive of such a state as being a happy state; a state in which the man freely takes his choice among things lawful without the slightest misgiving to mar his enjoyment as if in making his choice he had not been doing quite right, while on the other hand he never thinks of doing what is wrong but turns from the idea with abhorrence, nor has the slightest hankering after anything which could only be obtained through breaking through the law of right. And a condition something like this is pictured to us as being the original condition of man; free to eat as he liked of the fruit of the trees of the garden, one only being strictly and sternly forbidden to him.

But the enjoyment of such a condition presupposes perfect uprightness on the part of man; and failing that, supposing him to be in a condition in which the law of right-doing has been broken through, a condition nevertheless from which it is possible that he could be raised through means provided, it is quite conceivable that it might be the reverse of beneficial to him that the boundary between right and wrong should in all cases be sharply and clearly marked. For then the smallest transgression would assume the character of high-handed rebellion; and as by hypothesis the man is in an imperfect state, he would be liable to fall again into open disobedience, and the ill effect of it upon his character would be aggravated by the clearness of the light against which he had sinned. Hence instead of being gradually led on towards an improved condition the fear is that he would only become worse and worse. But the existence of a sort of sliding scale of clearness as to duty seems, on the one hand, to afford greater play for the exercise of love in doing what is somewhat doubtfully believed to be right; while on the other, a transgression involves a smaller shock to the character when the thing committed is only suspected to be wrong than would have been the case had it clearly and unmistakably been known to be so. We see then that in a state of probation the withholding of unmistakable light

in many cases as to what is right or wrong may be made the means of gradually winning over the character to that which is right.

So long as there is this contest between duty and inclination, man's happiness must be imperfect, even independently altogether of any physical pains or discomforts to which he may be subject. But we can imagine a state in which this struggle would no longer remain, from the full conformity of man's will to what is right, in other words, to the will of God. In such a condition man would serve, not as a servant, but as a son, not from compulsion in any degree, but from choice, finding his delight in that service. The contrast between these two kinds of service seems to me to be referred to in those words with which we are familiar, If ye have not been faithful in that which is another's, who will give you that which is your own?

That which is your own. Have we not here a picture of the lawful exercise of that free will, that freedom of choice, with which man was endowed? In such a condition a man would do what he liked, and yet without rebuke, for he would only like what was right. But the right course is not necessarily unique; were it so, his freedom of will would have no play; he would be somewhat in the condition of an automaton. In a social condition in which each individual had a wide option as to what he should

do, and yet never misused his freedom of will, there would be room for endless variety, and yet the evils would never arise which spring from an abuse of that freedom.

This condition is not, however, reached by any of us in the present life, though good men make some approach towards it. We need, therefore, to be cautious in the exercise of our freedom of will. We may not always do just as we like, even though that be not directly and in itself sinful. We are far more apt to indulge ourselves in what we like, even though there may be something not quite right about it, than to deny ourselves what we wish from a mistaken notion that it is wrong when it is not. Hence self-denial, even as regards things lawful, may be useful in its proper place as a branch of self-discipline, as helping us to keep our desires in hand. But we are not to suppose that mere objectless self-denial is well pleasing to God, who giveth us all things richly to enjoy, to be received with thanksgiving. The notion that it is lies at the root of asceticism. And in this connection it is worthy of note that in the law of Moses it was even enjoined upon the Israelites as a religious duty that on certain occasions they were to enjoy themselves. They were directed to tithe the produce of their land and to eat it before the Lord in the appointed place. And if this was too far off they were to turn it into money,

and bring the money with them, and when they got to the place to lay it out in the purchase of whatever they liked for food, and eat it there and rejoice. They were also, as we know, directed at an assigned time to "afflict their souls" as a memorial of their sins. The rejoicing and the afflicting themselves were both alike enjoined, the one in connection with the bounty of God, the other in connection with the sin of man; as if to keep alive in their minds that God willed their happiness, and that the unhappiness that they experienced was brought upon them through their own fault.

I have already more than once dwelt on the difficulty we with our finite minds feel when we endeavour to grasp the idea of God. I have mentioned it in connection with the attempt to reconcile the ideas of omnipresence and personality. As I have reason, from a letter I received, to think that what I said on the latter head may have been misunderstood, it may be well to repeat, and to state more distinctly, that the term "personality" was used in a qualified sense; as merely asserting the possession of mind, will, design, in contradistinction to an assemblage of what are looked on as mindless laws of nature.

But naturally the difficulty of reconciling the ideas of omnipresence and personality is not the

only one which we experience when with our finite minds we attempt to gauge the infinite. And when we come across such difficulties it is well to remember that oftentimes they may be such as we do best quietly to accept as being beyond us. An attempt to give a rational account of what is really above reason may even lead us into error, and, if I mistake not, has not unfrequently done so.

But it is one thing to be above reason, it is quite another thing to be contrary to reason. I believe that sometimes propositions which are above reason are rejected on the ground of their being contrary to reason. And the cause of their being supposed to be contrary to reason is, that an attempt is tacitly and unwittingly made to gauge the mind of the Infinite by our own finite minds. But though the employment of reason has its limits, it has a legitimate field of exercise even in matters of religion. And in saying this I would not confine the word "reason" simply to the intellectual powers. We have moral as well as strictly intellectual powers. The question, Why even of yourselves judge ye not what is right? implies, if I mistake not, the recognition of our possession of such powers, and a declaration of our responsibility for the use we make of them. Taking, then, the word "reason" in this wide sense, it may, I think, be said with truth that we should render unto reason the things that be reason's, and unto faith the

things that be faith's. And errors may arise, and have arisen, from making the field of either encroach upon that of the other. It may be, as I was saying just now, that a proposition may be rejected as contrary to reason when it is only above it, and was supposed to be contrary to it simply because the proper province of reason was erroneously extended. On the other hand, a proposition which really goes against reason may be asserted, and assent to it claimed, because it is erroneously supposed to be included in a province which is rightly claimed as belonging to faith. And the ill effect of this latter is not confined to driving into scepticism men of earnest minds, who by a more rational treatment might have been retained; it is fertile also in sowing disunion among persons who hold in common what they would agree in regarding as the most important parts of a faith as to which, in those respects, there is no difference between them.

Let me now refer to another question, to a difficulty with which we are very familiar, regarding which the origin of the chief embarrassment lies, as it seems to me, in the refusal quietly to recognise that the solution of the difficulty lies in a region which is above our comprehension.

We are innately conscious of the possession of free will; in other words, of the power of choice. We may speculate as we will about the origin of

that free will; one man may say that the will is in all cases directed by God Himself; another man may say that man is an elaborate machine; that his thoughts and his will are all determined by the motions of the molecules of which his body consists, so that he is as much an automaton as a wound-up watch. But none of these speculations interfere in the least with the consciousness which we possess of that which we call the freedom of our wills. Now, it is impossible for any of us to foretell in what manner another man will, on a given occasion, exercise his freedom of choice. From a knowledge of his character we may sometimes form a very probable guess, but that is all. Now, suppose we are told that God foreknows the action of man, are we driven to the alternative either of saying that the statement is incredible, or that the freedom of the will is only apparent, and that everything is fixed in an inevitable course? I need not say that the difficulty involved in this question, or rather, as I should say, in giving a negative answer to it, is one with which we are very familiar. But it seems to me that the difficulty turns upon this, that having no power ourselves of foreknowing the manner in which a given individual, on a given occasion, will exercise his freedom of choice, and not even being able to conceive the possession of such a power as belonging to ourselves, we are apt, therefore, to deny it as

belonging to God, and therefore to adopt one or other of the alternatives mentioned. But this comes to taking our own minds as a measure of the mind of God. We cannot deny that freedom of will of which we are innately as conscious as we are of our own existence; it would, indeed, be immoral to do so, as the whole of our responsibility depends upon our possession of that freedom of choice. If we are asked how we reconcile it with God's foreknowledge, the answer must be simply, We cannot tell; but to deny that it can be reconcilable in any way is to take our finite minds as a measure of the mind of the Infinite.

In my former lectures I ventured to throw out some suggestions which I thought might perhaps aid us a little in endeavouring to form some conception, however inadequate our highest conceptions must be, of the overwhelming idea of God. In the attempt we meet with ideas which, to our finite minds, appear almost mutually exclusive, and yet they are all essential, and our ideas would be liable to be erroneous, perhaps to an important degree, if we were to discard any.

When, for example, we contemplate God as the First Cause of all, as omnipresent, as exempt from limitations of time and space, the idea seems almost intangible, too abstract to be taken in. We are in

danger of falling into a sort of pantheism; the element of personality seems to fall into the background; we are tempted to think that a Being so vast can hardly have any personal relation to our individual selves; that our course in life is regulated by general laws as uniform and as inflexible as the laws which regulate dead matter. I would not for a moment disparage this latter view provided it be properly qualified, and associated with other ideas which do not find their place in the mere physical world.

On the other hand, the voice of conscience within us speaks to us of a personal Being, to Whom we are accountable, with Whom we seem, as it were, to be isolated. In this conception we, to a certain extent, are apt to lose sight for the moment of His government of all the hundreds of millions of our fellowmen, just as much as ourselves, and of all the vast universe, of the immensity of which the present state of our scientific knowledge gives us such an exalted conception.

Still this conception, though personal to ourselves, is yet in a certain sense what we may call intangible. Our senses give us no cognisance of any intercourse between ourselves and an invisible Being not ourselves. The thought may naturally arise within us, Is it in any way possible that we should have intercourse with such a Being in some manner more or

less analogous to that in which a man holds intercourse with his fellow-man?

In any wide and comprehensive department of human knowledge and study, we find it expedient not to attempt to grasp the whole at every moment, but to pay more special attention, sometimes to one, sometimes to another, branch of the entire subject. This is conducive in the end to a more thorough mastery of the whole, provided we do not so confine ourselves to one branch as to neglect others. Such a confinement leads to a one-sided and imperfect education; to an exaggerated estimation of the relative importance of the branch specially selected, and a depreciation of the others. It is analogous to the effect of certain trades on the development of the body, in which the constant employment of some particular muscles leads to an abnormal development of those in constant use, combined with some approach to atrophy in those which but seldom come into play, interfering thereby with the full symmetry of the human frame. Nor is the one-sidedness and consequent imperfection of the knowledge acquired through such a course as I have indicated the only ill effect of it; there is danger that the very completeness, so far as it can be called complete, of the knowledge gained in some very special branch may tend to make the holder of it conceited, tend to lead him to look down on his fellows, whose knowledge, it

may be, is as great as his own, but relates to subjects of which he knows hardly anything.

Now, this principle, which applies to the pursuit of secular knowledge, is equally, I think, applicable —perhaps I should say applicable in an even higher degree—to theology, whether natural or that which deals with the supernatural. I am not to dwell upon the latter, but I may remark in passing that I think that this one-sidedness, the vehement insisting upon some one point, or, it may be, some few points, to the neglect of a symmetrical cultivation of the whole field, has been a fertile source of misunderstanding and disunion.

Let me return now to the subject with which I started, namely, our conception of the being and attributes of God. If any subject of contemplation be overwhelming from its vastness, surely it must be this. In attempting to gain some true conception, however inadequate our conception must be at the best, may we have recourse to what has been found to be useful in attempting to make ourselves acquainted with some extensive department of secular knowledge, and divide the complex idea into portions which can be dwelt upon separately, yet not so as to neglect any?

We have seen how difficult it is to think of God as the First Cause of all, as the Ruler and Sustainer of all the worlds and of all that is in them, and yet

as a Being having a personal relation to our individual minds. And even if we had arrived so far as readily to combine these different aspects, still the desire is felt of, at least, the possibility of a more direct, a more palpable, as it were, communication between God and man.

Now, it is worthy of note that the Christian religion does present to us such a threefold aspect of the Divine Being; allows us, and yet without any departure from monotheism, to think of Him separately as the source and fountain of all, or as a Spirit influencing and holding converse, as it were, with our individual minds, or again, to contemplate His character through the veil of humanity, in a manner suited to the limitations of our human capacities. But this is a subject into which I may not further enter; though I did feel at liberty to point out how a particular portion of what the Christian religion teaches falls in with and satisfies certain cravings of natural religion.

LECTURE VII

Meaning of evolution—Illustration from coal: from certain celestial phenomena—Whether the origin of life on earth can be referred to evolution—Whether the adoption of evolution has an atheistic tendency—Suggestion of a sowing origin for life on earth—Mutual aid in the study of religious questions—Uniformity of physical laws—Extension to moral laws—Permanence of the consequences of the exercise of free will—Conclusion of the second instalment of lectures.

In several of my previous lectures I have referred briefly to evolution, either by name, or indirectly by discussing the possibility of the present state of things having arisen, by the operation of such laws as those which are subject to our investigation, from a condition which was at any rate very different from, and more elementary than, the present. At the present day what is called evolution is very much in the air, and it may not be amiss to discuss at some little length the question, Is or is not evolution consistent with theism? Or if it be not inconsistent, has its maintenance, or has it not, a tendency towards atheism?

Now, there is no use attempting to discuss such a question unless we start with clear ideas of the sense

that we attach to the terms that we employ. What, then, do we mean by evolution?

Let us take our coal-fields, and ask ourselves the question, How did that coal originate? Was it created just as we see it? Or was it formed by the operation of natural laws, such as those which form the subject of scientific investigation, from something which was not coal at all, but quite different?

The scientific man gives no hesitating answer to this question. He finds in the coal the remains of a vegetation now extinct. He is acquainted with chemical processes which go on in dead vegetable matter which go, to say the least, a certain way towards that considerable change which must have taken place before woody or leafy matter could be changed into something like coal. He finds in studying the structure of the earth evidence of past changes whereby what was once a mass of luxuriant vegetation might have got covered over, been subjected to great pressure, and, it may be, to a moderately high temperature as well. Everything leads him to the belief that the second of the two alternatives mentioned above is the one he must adopt. He may express this briefly by saying that the coal was formed by evolution.

But in thus expressing himself, "evolution" is in no sense whatsoever regarded as a cause. Nay, it does not even describe the process of formation; it merely expresses the general character of that process

as being one which takes place naturally under the operation of chemical, mechanical, etc., laws which are known, or if not wholly known, yet at least analogous to those which are; laws, accordingly, which are open to our investigation.

Now, no one who knew anything of science would, I think, suppose for a moment that there was anything at all atheistic in thus attributing the formation of coal to a process of evolution. But we can, I think, without much difficulty imagine a man, say of a devout turn of mind, who knew absolutely nothing of science, who was in the habit of dwelling in his thoughts on the immense usefulness of coal to man, and regarding it as a direct gift from the Creator, perhaps supposing that it had been created exactly as we find it. Perhaps such a man, on hearing a rumour that some scientific man had asserted that coal was formed by natural causes from something quite different, might be shocked, might imagine even that he must be an atheist. Perhaps our unscientific friend, after a time, might get some inkling of the evidence on which the scientist relied, and might be induced to come round to his opinion. It is conceivable that in the change his faith might be made to totter a bit. But it would not be evolution which was chargeable with this, but his own narrowness of views, his own antagonism to the opinions of his neighbour, whom he had put out

of court without a hearing. When he had recovered from his shock he might perceive that he was perfectly at liberty to retain his former belief that the coal-fields were designed to be used by man; only his previous notion of the way in which that design was carried out had to be amended.

Take now another phenomenon. Some years ago a new star, or at least a star which, if it existed before, had been quite inconspicuous, burst out in the constellation of the Northern Crown, and after remaining bright for some time gradually faded away. Now, what are we to think of this event? We cannot get at the star to examine it as we can a piece of coal. We cannot, accordingly, have quite the same evidence that the conflagration, whatever may have been its nature, was brought about by natural causes. Shall we suppose that it was the destruction of a world, brought about by supernatural agency? Perhaps the grandeur of the scale which our knowledge on the enormous distances of the fixed stars obliges us to attribute to the phenomenon might dispose the minds of some to entertain such a view. But I think there is no doubt what answer scientific men, however firm their theism might be, would be disposed to give as to the alternative they would adopt. Though we do not actually know what occasioned the outbreak, yet the phenomena are so closely akin to what we are able to refer to natural

causes that we cannot hesitate to include them in this category. In the meteorites which are oftentimes actually detected in the act of falling to the earth, from which they are picked up, in the shooting stars, which, we have reason to believe, are the same thing on a smaller scale, we have evidence of the wandering about of solid bodies in free space, and of their coming into collision with other bodies. We know that the collision of two large bodies, moving relatively with velocities comparable with those of the planets in their orbits, would produce an enormous development of heat and light, as is seen on a minute scale in the gleam of light which a child produces by drawing one over the other two silicious pebbles which he has picked up on the seashore. Such a collision as I have mentioned might be competent to produce that vast exhibition of glowing hydrogen of which the spectroscope gave us evidence as having occurred in that outbreak. Or it may have been brought about in a different way more nearly resembling that which we find to be continually occurring in our own sun, on an enormous scale as judged by the dimensions of the earth, though a scale which must be minute compared with the outbreak in that temporary star. We see, then, that in this case, though we cannot lay our finger on the precise process going on, we have every reason to compare it with the ordinary processes of nature.

Take now a third phenomenon. We know that life in various forms exists on earth. We have strong physical reasons for believing that the earth was once in a molten state, a state, therefore, utterly unfit for its habitation by living things. How, then, did life originate upon earth? Even though we may be unable to give any scientific account of its actual origin, is there something which we can scientifically examine that seems so far akin to the origination of living from dead matter as to raise some degree of probability that such a thing is possible by mere natural causes?

Now I think the scientific answer to this question must be in the negative. For my own part I may say that I know of nothing at all analogous to it. The most eminent biologists and the most careful experimentalists seem to have come to the conclusion that, so far as our investigation can carry us, life can only come from life. Here then we are brought face to face with the alternative of either admitting the probability of the exertion of some creative power above the ordinary course of nature, or of rejecting any such agency and sticking to evolution in spite of all appearances pointing to its inadequacy. Of course we may assume evolution *for trial*, as a guide to our researches, so long as we bear in mind that it is only assumed hypothetically, for that purpose; but to adhere to it when there appears

not the slightest prospect of its competence to account for the phenomenon presented does, I confess, seem to me to indicate an *animus* in the direction of endeavouring to dispense with a Creator. If such there be, I cannot say that the adoption of evolution to such an extent as this is quite consistent with theism.

But we must not judge other men for the conclusions which they are disposed to draw as to the origin of some phenomenon presented to our consideration. A due estimate of the probability of a phenomenon having arisen from natural causes involves a just weighing of any scientific evidence that may seem to indicate something analogous in the domain of what clearly belongs to science to investigate; and the amount of scientific knowledge of what may possibly bear on the question possessed by one man may be very different from that possessed by another, even though he be a man of science. And for those who are not scientific there only remains the still more difficult appreciation of the weight to be attached to the opinions of scientific men. It is not every opinion of a scientific man, or even of several scientific men, that may safely be relied on; and a person who is quite unable himself to judge of the alleged scientific evidence can only form an opinion by estimating the soundness of judgment of the scientific men who say that there is good evi-

dence of the phenomenon to be investigated being really analogous to what belongs to the domain of science.

Hence the evidence in the minds of different men for or against the adequacy of natural causes to account for a given phenomenon may easily, and may quite properly, be different. Accordingly one man may believe that the phenomenon is to be referred to natural causes though they have not yet been made out, without any weakening of his theistic belief, while for another man thus to refer the very same phenomenon, in spite of the (to him) violent improbability that any such explanation is possible, or rather what would be a violent improbability if it were not that the alternative supposition is put out of court, betrays an *animus* hardly consistent with theism.

It seems to me then that evolution is not to be charged with a tendency towards atheism, or that it has such a tendency, according to the way in which it is used. If we merely say to ourselves, If this phenomenon is referable to natural causes it belongs to the domain of science, and came about by evolution, and I will set myself to endeavour to make out how it came, there is nothing atheistic in that. If, on the other hand, we say, Every phenomenon presented to us must have come about by evolution, and by that

alone, ignorant though we be of the existence of anything at all analogous in the domain of science, that does seem to be putting out of court the existence of a God, and that of course would be atheism, or tantamount to it.

To illustrate my meaning I have taken the particular phenomenon of the first appearance of life upon the earth. I have called it a phenomenon for the sake of giving it a name; but it is not of course that in the strict sense of the word, inasmuch as it is not anything presented to our observation, but an inference from things that are; an inference, the scientific grounds of which are so strong, that we may be pardoned for speaking of it as a phenomenon. In order to avoid interruption in what I wished to explain, I have tacitly supposed that the only alternative lay between referring the origin of life on earth to a creative act and supposing that living things, or at least some form of life, arose by natural causes from dead matter. But having chosen this particular illustration I wish to say a few words in reference to a suggestion which has been thrown out, which would refer the first appearance of life on earth to neither of what I have been treating as the sole alternatives.

In his presidential address at the meeting of the British Association in this city in 1871, Sir William

Thomson referred to this problem, and gave an illustration of what a scientific explanation might be. A stream of lava becomes after several years covered with vegetation. How is it that we get here forms of life where life there had been none? We know that the seeds were wafted by the wind, and possibly in other accidental ways as well, and finding a soil not unsuited to them, though previously it had been barren, they germinated and produced the plants we find. Might we suppose a *sowing* origin for the first occurrence of life in any shape on the previously molten earth, now cooled down sufficiently for the reception of vegetable life? We know that meteorites fall from time to time on to the surface of the earth. Where they came from we do not know. They may, or some of them may, have been small fragments which flew off from some habitable globe in consequence of collision with another globe. May not one of these fragments have contained some seeds, the spores perhaps of some lowly moss, which thus were transported to the earth and there germinated?

I need not dwell on the difficulties attending such a hypothesis, nor point out to you that even if it were true there is far more to explain than merely the first occurrence of life on earth, and that there is no mode of transition that we know anything of

by merely natural causes from a moss to a man. For as I listened to the address I did not imagine that the distinguished author advanced the suggestion as anything of a probable explanation of the way in which life first came to be upon the earth. The intention, as I understood him, and I have grounds for saying that I understood him rightly, was merely to illustrate, as it did in a very clear and graphic manner, the nature of what might be taken as a *vera causa* in the attempt to explain a phenomenon, in contradistinction to the mere unscientific conjecture that life on earth originated spontaneously from matter not previously endowed with life.

If we take the body of natural science, such as it has become in modern times, we see that it subdivides itself into a number of different branches. Yet these branches so interlock that there is a mutual dependence of one on another, so that a man who made himself familiar with one only to the total neglect of the others might well fall into error, for want of a more general knowledge, even as regards the branch which he had specially taken up. Of course he would attach great weight to the opinion of some fellow-worker who had taken up a branch bordering on his own; but he would not be satisfied unless he were able to form

at least some sort of idea of the evidence on which his fellow-worker relied for the substantiation of the opinions which he maintained.

Now we might expect something analogous to hold good even as regards moral and theological questions, though there may not be such distinct divisions into different branches, and though the means of investigation are extremely different. Some portions of the whole range may be clearer to the mind of one man, some to the mind of another. One man may fall into some mistake which he does not perceive, another might be able to point it out and set him right. But the investigation is not of that precise definite character that we have to deal with in mathematical investigation, or even in the pursuit of physical science. The conclusions which a man arrives at are the outcome of a variety of considerations, the entirety of which he could perhaps hardly formulate even to himself. One man cannot apprehend the views of another in any off-hand way, by any superficial investigation; still less if he approaches the supposed opinions of another in a spirit of antagonism, for the purpose of objecting to them. In such a case he is pretty sure to misunderstand and, however unintentionally and unwittingly, to misrepresent the views of the other.

In order to put ourselves in a position to profit

by whatever there may be of truth in the opinions, taken as a whole, of other men, we must endeavour to throw ourselves as far as possible into their feelings, to see things, so to speak, through their spectacles, to try how far we agree with them rather than how far we differ from them. If earnest-minded men are approached in this spirit, I think that we shall generally find that we have something to learn from them, even when at first sight we might have supposed that we differed from them altogether. And though there may still remain various things in which we find that we do not agree with them, I think that we shall learn to respect them far more than we should have done if we had held aloof from them.

The ideas of others on such subjects are best arrived at in the way of friendly conversation when that can be had. In this way misapprehensions are the most easily cleared away, and the benefit obtained through the contact of minds of different casts may be mutual. This, however, is a method of only restricted application, since it implies residence, at least temporarily, in the same place, and, usually at least, previous friendship. In default of this, much may be done by reading books written by earnestly-minded men of different ways of thinking. This is no mere speculation; I can speak from some experience, being rather fond of

this sort of reading; and I seldom, I think, read a book of the kind without rising from the perusal with greater respect for the author and those of his way of thinking, without seeing even in cases in which I still felt that I differed considerably from them that they had much more to say in favour of their views than might at first sight have appeared, or without finding that there was a good deal in which I could sympathise.

The remarks I have been making with respect to individuals apply equally, it seems to me, to groups of individuals, the groups being formed of persons who are drawn together by a general community in their way of thinking. If the members come to look on their own group as perfection, and regard other groups chiefly with the object of picking holes in their opinions, they are sure to become narrow-minded, and will probably fall themselves into error, or at any rate hold the truth in so distorted a form as almost to amount to error.

No man or group of men can truly claim infallibility for their opinions. They may be compared to squirrels on the diverging branches of a tree of which the stem represents the truth. By attraction to one another they are drawn towards the stem of truth; by repulsion they are made to recede further from it.

In connection with this topic I may remark that I think that Lord Gifford did wisely in prescribing that his Lecturers should be changed from time to time, so that minds of very different casts might be brought to bear on the great subject which so much occupied his thoughts in the closing years of his life. And this thought affords me some consolation for the deficiencies of which I am keenly sensible in attempting to handle so wide and difficult a subject as that which he prescribed; a subject too lying out of the direction of my ordinary studies.

In the study of physical science, we have constantly presented to our minds the uniformity and universality of the laws which regulate the action of inorganic matter, and of the agencies (such as light, heat, electricity, etc.) by which it is affected. These laws are inexorable, and if we attempt to act in opposition to them we come to grief. When from the study of inorganic nature we pass on to biology, when we study the growth, the nutrition, the conditions of thriving or decay, or of living things, be they plants or animals, we are not able to trace with the same definiteness and precision the relation between cause and effect. Yet we have abundant evidence of the existence of stated laws, though their operation is modified by so

many influencing circumstances with which we are ill acquainted if acquainted at all, that we are far from being able to calculate the result of given conditions.

If we look on the course of nature as the outcome of the will of a Supreme Being, we are led to conclude that at least as a rule He works by uniform definite laws.

But when from matter, whether unorganised or belonging to living things, and concerned in their nutrition, growth, etc., we pass on to mind, and consider results depending on the exercise of free will, we enter a region in which at first sight it might seem as if there could be no such thing as laws at all. What can well be more arbitrary, we might at first sight be disposed to say, more exempt from all idea of law as producing definite effects, than the action of the human will?

And yet even as regards this we have plain indication of the operation of law. Consider for instance the statistics of crime. In a very large population, living in a given social condition, there is somewhat of a rough uniformity in the criminal percentage one year with another. Yet what can be more purely arbitrary than a criminal exercise of the will?

Suppose a person to throw a pair of fairly-made dice a very great number of times in succession.

It would be found that a given pair of unequal numbers would turn up on the average somewhere about once in eighteen times. This is the result arrived at by the theory of chances. But the way in which the dice fall depends on the laws of motion, of those of impact, etc. In arriving at the numerical result above stated we start with assuming that any one way in which a pair of dice may turn up is equally probable with another. But what do we mean by equally probable? Could we have any conception of equal probability if we could imagine the dice to fall exempt from the operation of any law of any kind whatsoever? Similarly in the statistical question mentioned above the approximate uniformity of the results does not militate against the freedom of the wills of the actors. But all the while there are tendencies to moral acts depending on the constitution of our minds and regulated by definite laws.

In the physical world every motion, every change, produces an effect which causes the subsequent condition to be different from what it would otherwise have been; though oftentimes that subsequent change is so widespread in the field over which it extends, and so minute at any particular place, that it eludes our powers of observation. Still it is none the less true that the subsequent condition is not *exactly* the same as if

that initial change had not taken place. For example, when a stone is thrown into a widely extending sheet of water which I will suppose unruffled, a series of annular waves are propagated outwards from the place where the stone fell, which get broader and shallower as they travel along till at last the elevations and depressions become imperceptibly small. Yet the total effect does not go on diminishing, the increasing smallness of the effect at any one place being made up for by the increasing area over which an effect is produced. In a similar way each exercise of the will, determining whether an action shall be done this way or that way, carries a train of consequences of this kind or that kind according as the determination was this way or that way. In many cases, as regards more trivial actions, the difference in the train of consequences may hardly be noticeable. Yet even here the difference of result is oftentimes apparently out of all proportion to the apparent importance of the choice. The difference in the train of consequences is usually most obvious in relation to the effect upon others, or to some outward effect upon the man himself. But what I wish to insist upon is the difference it makes on the character of the man himself who is called on to make the choice. Acts, that is to say exercises of the will in acting,

produce habits, tending to make the determination of the will on a future occasion more likely to be in the direction in which it had been previously exerted. Thus benevolent acts tend to make the character benevolent; acts of self-indulgence tend to make a character weak, and so on.

This is of course very generally admitted. But I doubt if it is usually so much borne in mind when the time comes to make the decision. Perhaps a man is tempted to some act which he feels to be wrong, though as it seems to him only in an extremely trivial degree. Conscious of the freedom of his will, he thinks perhaps, It does not much signify for this once, I can stop whenever I like. But the very act of yielding weakens his power of resistance. That it should be so is a law of our moral nature, a law as definite as those which regulate the inorganic world, though not so easily traceable, on account of its being mixed up with the freedom of the will. Nor is the existence of such a law disproved by the fact that it does not necessarily lead to final disaster. Perhaps the first yielding to what is felt to be slightly wrong is followed by another not quite so slight, and so on till the man is pulled up by finding that he has done something that he would not have thought of his doing at the time of the first temptation. Perhaps his eyes are opened to

the seriousness of what he has done by some misfortune it has brought upon another; a misfortune which seemed out of all proportion to the fault as it at first appeared to him. In these or other ways the man may have been led to repent of what he had done and to seek amendment. But it may be also that that first wrong act, that trivial fault as it seemed, proves to be but the first step in a downward course which leads him by degrees deeper and deeper down until he is past recovery.

But supposing that the downward course was arrested, even at a very early stage, it does not follow that the man's subsequent condition is as high as it might have been if he had never yielded, high absolutely considered though it may become. Good in some respects may have arisen even from his arrested fall; it may make him more humble, more watchful for the future. But it does not follow that his character, taking it all in all, is as high as it otherwise might have been. Moral causes will produce moral effects just as physical causes produce physical effects; and though evil may be overruled for good, we can hardly imagine but that a higher good would have accrued had the evil been avoided. But whereas what did happen under the circumstances which actually took place is open to our examination,

what would have happened under different circumstances is beyond us to calculate; and accordingly that theoretical higher good in many if not most cases remains unknown to us. Perhaps it may be well that it should; perhaps a clear knowledge of all that through our own fault we missed might have too much filled us with regret.

Still it is well that we should ever bear in mind that by doing wrong, even should we be restored from it, we forfeit some higher condition which we might have reached by having resisted the temptation to do that wrong. And in this respect too, as well as in another to which I have already referred, I cannot help thinking that highly-drawn, exaggerated representations of the disastrous final consequences of sin have an injurious tendency, as leading us to concentrate our attention on a mere negation; on the avoidance of final disaster; as keeping in some measure out of sight the very various degrees of advancement to which it is possible to attain in the right way.

In bringing to a conclusion this second instalment of the lectures which the Senatus of the University of Edinburgh did me the honour to entrust to me, but which I now feel as if I had been rash in venturing to undertake, it may not be amiss that I should take a review of the

situation, and frankly state the difficulties under which I felt myself labouring.

The words of the Deed of Foundation show that Lord Gifford was profoundly and devoutly impressed with the supreme importance to man of a true knowledge of God, and felt that to promote it would be the greatest benefit he could render to his fellow-creatures. But how was this knowledge, of so much importance, to be promoted? As I have already remarked, he seemed to think that this was to be accomplished by a systematic exercise of the mind in that direction, by depending upon our natural mental powers, by using them in a manner analogous to that by which the natural sciences have been built up. He directs the Lecturers to treat their subject "without reference to or reliance upon any supposed special exceptional or so-called miraculous revelation."

It must not for a moment be inferred from these words that he rejected revelation himself; but merely that he was desirous of founding a complete system of natural theology and ethics which should be independent of any supernatural revelation. Of course it would be lawful to make use of any hint, if I may so express myself, that may have been derived from what is believed to be revelation, but any proposition that might have been thus suggested

is ultimately, according to a strict interpretation of the deed, to be based on natural reason.

I confess I found the task, as thus restricted, one of great difficulty, or to speak more frankly one lying beyond my powers. It is true I have thought a good deal about various theological questions; but believing as I do that a revelation *has* been made by God to man, I naturally leaned upon that, examining of course what was supposed to have been taught by revelation by the exercise of natural reason, but not rejecting a proposition which appeared to be contained in what was held to have been revealed merely because it could not be established by reason alone, that is without borrowing from revelation more than the suggestion of its possible truth.

It seems hardly fair to revelation freely to make use of suggestions coming from that source, and then give to reason, in case the suggested propositions should be established thereby, all the credit for the establishment. If this, however, were all it would not much matter; for truth should be our object however it might be arrived at, and the source of the suggestion would commonly be well known even if not explicitly stated. But a far more serious hindrance to success attends the proposal as thus strictly interpreted. If we suppose that the knowledge of certain truths

has been communicated in a supernatural manner from God to man, we might expect them to be of such a nature as to fit on to his capacities as well as to his wants. This adaptation would afford confirmatory evidence of what was asserted on other grounds, and increase the confidence with which that was accepted. Nevertheless the evidence derived from reason alone—I mean as applied directly to the propositions, and not merely indirectly, as used in scrutinising the evidence for the acceptance of a revelation—this evidence, I say, by itself alone, may be wholly insufficient for the establishment of the asserted propositions. Hence a strict exclusion of revelation from the evidence in favour of the propositions, from anything beyond the office of suggesting them as possibly true, would often have the effect of making propositions which are most important, if true, appear to rest on extremely slender evidence.

Nevertheless, the bringing forward of confirmatory evidence, which seems quite fairly to lie within the limits of what the Gifford Lecturers are directed to confine themselves to, may be useful as far as it goes, and I have allowed myself to introduce the subject. I have, however, done so with reserve, and I could not help oftentimes feeling as if I were called on to work in a strait waistcoat.

Among those who alike believe that a revelation

has been made from God to man, there is much difference of opinion as to the precise extent of that revelation, and as to the meaning of what is indicated. Some are disposed to take what would be called a broader view, in which a larger share is left to the exercise of human reason; some, on the other hand, pin their faith more narrowly to what, rightly or wrongly, they imagine to have been revealed, and fear that a freer exercise of the reason would involve presumption, and might lead to error. The importance which properly belongs to the subject matter of what is revealed is not unfrequently transferred to one's own conception of what is supposed to be revealed; and as there is a good deal of difference of opinion as to the outlying parts, the effect of this over-self-confidence is to split men into parties, those of one party, in their attitude towards those of another, setting themselves mainly to object to what they disagree with.

Now, I think that a rational examination of propositions which are accepted, in the first instance, as having been, as it is supposed, revealed, has a tendency to counteract the narrowness to which I have referred. Truth cannot be self-contradictory, and the wider the basis on which the evidence for truth is examined, the more firmly is that which is really true likely to be established, and the more likely is it that specious fallacies will be detected, fallacies

the mistaking of which for truth is calculated to do harm, as in other ways so especially in this, that it tends to produce dissension between those who hold fallacies of different kinds, and to encourage a mutual opposition whereby they are led away from the contemplation of the truth which they hold in common.

Of course one who depends in great measure on reason for the theological propositions which he accepts may be narrow-minded just as well as one who dares not to apply his reason to them at all. The evidence that there may be for revelation itself, and for such or such a proposition having been revealed, is not to be put out of court any more than the exercise of reason. The evidence is to be taken as a complete whole, and the conclusion to be drawn accordingly, to the best of the man's ability.

Now, in examining theological propositions which are accepted mainly on the ground of their being, as it is supposed, taught as belonging to and forming a part of what a body of doctrine which is believed to have been revealed, with a view to ascertaining whether they can receive any support, or otherwise, from what we are led to by the exercise of reason, it would seem to be unnatural to avoid all reference to revelation, or even to refuse frankly to admit that it is to revelation mainly that we must look for evidence of their truth. It would seem almost necessary to adopt one or other of two alternatives; either to

avoid such propositions altogether, or to depart from, at least, the letter of the Deed of Foundation of these Lectureships. The former course would, I think, detract from the usefulness of the lectures; but, if the latter were adopted, it would be requisite to exercise a sound judgment, so as to avoid entering a region of theological controversy, from which it was evidently the intention of Lord Gifford that his Lecturers should hold aloof. I have hardly ventured at all on this latter alternative, for fear of transgressing the conditions of the deed. Perhaps I have been over-scrupulous in this respect. For, after all, in the cases I have been supposing, the arguments for or against a proposition which are derivable from reason form by hypothesis only a minor part of the total evidence; they are only to be taken for what they are worth; it is not pretended by any means that they settle the question. If they should be confirmatory of what was previously accepted on other grounds, they lead to its being held more firmly. If, on the other hand, they should appear to be in opposition, they afford material for thought. They incite to a fuller examination of the question as a whole; and, if this be carried on in a humble, truth-loving spirit, it may quite possibly lead to a larger insight into the question as a whole, which may have the effect of clearing away some unperceived error, and introducing harmony into the whole body of evidence.

In the pursuit of physical science it has often been found that the study of some apparent anomaly has led to a fresh discovery, whereby the boundary of ascertained truth has been enlarged. And there seems no reason why something of the same kind should not occur in the pursuit of any other departments of truth, even truths belonging to the domain of theology. And if the result of the investigation should be that the difficulty remains, and we do not see our way out of it, even this may have a beneficial effect if it makes us more tolerant towards those who differ from us.

If the system of nature be regarded as the work of God, we may from its study learn something of His attributes. I might have dwelt upon some of the wonders that science, with its great extension in modern times, has brought to light; and here and there we might find ideas thus brought before us which bear on the attributes of God. As my own studies have lain chiefly in a scientific direction, I could thus more easily have given lectures which might have been of interest, and at the same time have borne upon the subject prescribed. I have, however, refrained hitherto from following such a course, fearing that the bearing was hardly sufficiently direct.

In further lectures I propose to allow myself greater freedom in either of these directions; that

is to say, in referring in a more direct manner to what is usually accepted as being, as it is supposed, revealed, or in referring to the system of nature as investigated by the labours of scientific men. And now I will take my leave, hoping to resume my lectures before long.

LECTURE VIII

Fuller conception of the Divine Being possible through the veil of humanity—Advantage of a perfect example—Resurrection demands, like creation, a Divine Power—But the supposition of resurrection removes certain grave difficulties—It is not to be encumbered by adventitious additions—Evidence of design from beauty in nature—Two theories of the perception of colour—Discussion of propriety of prayer for material advantages, such as favourable weather.

AT the conclusion of my last lecture, delivered, I regret to say, a full month ago, I mentioned the difficulty which I experienced in consequence of one of the provisions of Lord Gifford's Will, that namely which forbids the Lecturers to refer to or rely on any supposed special exceptional or so-called miraculous revelation. In consequence of this restriction I felt hardly at liberty to introduce the mention of peculiarly Christian doctrines. I believe, however, I was needlessly strict in this respect; and I expressed the intention of allowing myself somewhat greater liberty in future. One can hardly suppose that by "reference" Lord Gifford meant mere mention; what he wanted

was apparently that the Lecturers should not make revelation in any way the *foundation* of what they taught. This restriction seems quite compatible with an examination of the reasonableness or otherwise, if examined merely as hypotheses, of propositions affirmed on the strength of what is believed to be a revelation. I expressed the intention of allowing myself greater latitude in this respect than I had previously done. With this explanation I will venture to bring forward a very few points of strictly Christian teaching.

In the second instalment of these lectures, I have already touched very briefly on the threefold aspect in which the idea of God is presented to us in the Christian religion, and have endeavoured to point out how it seems to supply certain desiderata which we seem to be conscious of when we endeavour to frame a system of religion merely through the exercise of our own reason. To-day I would enter more fully into the conception which we are enabled to form of the Divine Being if we accept what Christians hold to be true—that we are enabled to study the character and attributes of God through One in whom the Divine and human natures are united.

The progress of science has made us familiar with the vastness of the universe, the community

of the physical laws extending over the whole, the community, as a rule at least, of the laws which regulate it from age to age. This might seem perhaps at first sight to banish from the mind the idea of personality as belonging to the First Cause; to lead us to think of an assemblage of mindless laws. Yet, on the other hand, we meet with such overwhelming evidence of design, of purpose, especially in the study of living things, that we are compelled to think of mind as being involved in the constitution of the universe. But now we seem to be landed in perplexity; we can hardly grasp the idea of personality (in the sense in which we apply that term to the Supreme Being) in conjunction with those attributes of infinity to which reference has just been made. We seem perhaps to hesitate to think of character as applicable to so vast a Being. We might be disposed to think that at least as regards anything of the nature of character He must be unknowable. And yet it must be of the greatest interest to us as a part of the universe which He governs, to know if possible something of what may be called for want of a better mode of expression His disposition towards us.

We learn something of the dispositions of our fellow-creatures towards ourselves in the common intercourse of daily life. The disposition also comes

out in the writings or recorded sayings of others. But how could it be possible that there could be anything of the same kind between ourselves and an Infinite Being?

Here is a desideratum which Natural Theology might lead us to feel, but which it is unable to supply. Nevertheless it may prepare us for the satisfaction of the want which is offered by the Christian religion, according to which through the study of One in whom the Divine and human natures were united we may through the human, which as human is intelligible to us, gain an idea of the character of the invisible God. This is a subject which I would fain follow out at considerable length, but as it would be entering on a field of possible controversy, and is connected with Natural Theology only in so far as it may be deemed to belong to that science, to point out the reasonableness of what Natural Theology by itself could never have discovered, and which we are led to only through evidence involving the supernatural, it seems to me hardly consistent with the terms of the Gifford Foundation to pursue the subject further.

But there is yet another desideratum which we feel, the satisfaction of which is thus offered to us.

We are much influenced by the example of those among whom we live. If they are persons of a low

tone of mind, we run great risk of being deteriorated by them; we require to be specially on our guard to avoid such a danger. If, on the other hand, they are morally above us, they exert an elevating influence upon us. We see little traits of character indicating an internal goodness which silently reproves our own shortcomings, and leads us on to imitate them. And failing personal acquaintance something of the same effect is produced by their writings or biographies. But now comes the drawback. Even the best of our fellow-creatures, much as he may be above us, is yet but imperfect. We cannot take him as our pattern unreservedly without running the risk of imitating his failings as well as his virtues. But what if we have One to imitate who as human is intelligible to us and imitable, but who as being at the same time Divine is exempt from all the fallibility and all the shortcomings belonging to even the best of our fellow-creatures? Yet no less than this is held out to us by the Christian religion.

In that religion, there are various statements made as to things which we never could have arrived at merely by the light of reason, and which, from the very nature of the case, we cannot demonstrate by reason alone, even when they have been told us, but which, nevertheless, *fit in with* what we know from the light of reason, or, it may be, from

common experience, in such a manner as might be expected of the different parts of a compound body of truth. This adaptation may not be sufficient, or anything like sufficient, to establish the truth of what is thus asserted (if it were, what would be the use of a revelation merely to tell us what we might have found out for ourselves, at least if the suggestion were once made?), but yet the adaptation is a matter the consideration of which is not foreign to the province of natural theology, provided that what is asserted as revealed be treated merely as a hypothesis which we are at liberty to examine. I propose to consider from this point of view the assertion of a future resurrection. I have already referred to it briefly and incidentally in connection with the subject of personal identity.

The doctrine of a future resurrection is not to be confounded with that of a future life, to which it is related as a species to a genus. A more or less assured belief in a future life—in a life, that is, after death—has been pretty widely entertained among nations who had not Christianity to guide them, but in most cases it took the form of a survival of the soul in some tenuous unsubstantial form as a ghost or shade. And the description of the condition which has been given by some of the ancient poets is anything but inviting.

We as individuals occupy each of us at any

definite time some definite locality. Our senses give us cognisance of much that is going on at a distance in the world around us; but the seat of our senses is in our bodies, which are confined as to locality. Our senses continually furnish us with fresh materials for thought, as well as enable us to hold direct intercourse with our fellow-creatures, but in the act of thinking, of reflecting as distinguished from perceiving, we are not conscious of any intervention of our senses. So far as our own consciousness or sensations go, the body does not seem to be concerned in thought. When from mere conscious sensation, or rather consciousness of absence of sensation, we pass on to physiological investigation, the intimate connection between thinking and the condition of the brain seems to indicate that even in thinking the body intervenes in some way of which we are not conscious. But, even were it not so, still it is only through the senses, and therefore through the body, that we are affected by the world outside us, or even are able to hold intercourse with our nearest relations.

Accordingly, though we may conceive of thought, reflection, as going on independently of our body (I do not say that it can or that it cannot), yet, at any rate, as regards any cognisance of the world around us, or any interchange of ideas with our fellow-creatures, if it do not take place through a body of

some kind, it must be by means of which we cannot well form any conception. I imagine that, if we attempt to conceive the thing, we forthwith think of seeing, or hearing, or something of the kind. But how are we to see or hear without an organ of vision or hearing, and how can we have such organs without a body of some kind?

Accordingly, we are not condemned to the difficulties of conception and the vague indefiniteness of a state of being so utterly different from our present as that which we have been considering. The Christian religion holds before us the promise of a future body. It is true that the nature of that body is at present unknown. Still, as being *a* body, we gain a definiteness of conception of a future state which is wanting in the more vague idea of a soul surviving the death of the present body. There is a gain in definiteness of conception, and consequently in influence on the life.

But, in adopting the Christian doctrine of a future body, we are not to encumber it, as some have done, with purely adventitious additions, introducing thereby difficulties of belief which are perfectly gratuitous. All we are told is, that there is to be *a* body, a body of some very different kind from the present, a body, of course, which we should recognise as our own, just as we do our present bodies, notwithstanding the state of continual flux

that they are in as regards the actual particles of which they are composed. We are not in the slightest degree committed to the supposition that they will be composed of the actual materials of the body laid in the grave, brought together again no matter how much dissipated. We are not even informed whether they will be composed of what we call material particles at all. So far as I can see, there is nothing to lead us to think that we are any more concerned with the body that was laid in the grave than is the butterfly with the skin which it cast off in passing from a caterpillar into a chrysalis. And what becomes of the body when done with, whether it be buried or cremated or otherwise disposed of, is not a matter with which religion is concerned, but one to be decided by considerations of feeling and of sanitation.

I have already in these lectures referred to the evidences of design manifested especially in the world of living things, evidences derived from the structure of animals as adapted to their wants, from the elaborate apparatus involved in their organs of sensation, those for instance on which vision depends, and so forth. I have alluded to the endeavour which has been made to account for all this on a purely evolutionary theory, and have indicated what to me appear to be the extreme

difficulties under which it labours. I think the first idea of any man of common sense on being made acquainted with these things would naturally be that the organs were *intended* for the purpose which we find them actually fulfilling. Of course first impressions may be wrong, and we should always be ready to give a patient hearing to a theory which professes to account for the results on purely scientific principles. But for my own part I fail to see any such mode of accounting for them, anything to lead us to think that the first conclusion of our supposed man of common sense was other than what we must come to in the end, or that the idea of design is capable of being eliminated. This, however, leaves the widest latitude as to the mode in which the final result was brought about; it does not commit us in any way to the assumption of a *direct* creation in the final form; it leaves that a perfectly open question.

To-day I wish to mention an instance of what would naturally be regarded as designed, but what does not appear to contribute, as in the instances previously mentioned, to the wellbeing of the living thing in which it is found. And it is for this very reason that I refer to it, because it seems to give us further suggestions concerning the attributes of the Divine Being.

There is much that is beautiful in nature. The

varied landscape, the colours of the rainbow, the evening lights and sunset skies, the forms of plants and animals strike us as objects of beauty. This of course involves the co-operation of two different classes of things, the objects external to us and our own powers of sensation. With regard to some of the objects, beautiful though they be, it is possible to regard the beauty as something incidental. Take for instance the rainbow. Given the laws of reflection and refraction, the dispersion of light which accompanies refraction, and the existence of falling drops of rain illuminated by the sun, the form and colours of the rainbow follow of necessity. But we can see no reason in the sense in which we here speak of a reason, that is, as a necessary result of the operation of general laws, why the beautifully painted wings of the butterfly should be what they are. We are strongly led to regard these exquisite markings as designed for some end. But what end? Is it to the wellbeing of the animals, apart from the pleasure which the sight may possibly afford to them? It is not easy to see how it conduces to this end, though possibly to some extent it might, by making them more attractive to each other. What sort of sensations the sight may afford them it is very difficult for us to imagine, for the eyes of insects are constructed on a totally different plan from those of mammals,

birds, reptiles, and fishes; in other words, from those of vertebrate animals. At any rate, whatever it may be to them, we know that we can observe and enjoy the beauty.

But pass from butterflies to flowers. Here we have beauties of colour, of form, of pencilling and variegation, for which it is hard to find a motive in utility to the plant itself; and as nothing indicates that vegetables have a mind, so as to be capable of enjoying their own beauty, we are led to the conception of a beauty designed for the enjoyment of a being or beings external altogether to the living thing on which that beauty is shed. This provision for the simple enjoyment of the creature, apart altogether from what is conducive to his material welfare, this supply of what is "pleasant to the eye" as well as what is "good for food," seems to me to raise our ideas of the beneficence of the Creator. Moreover it seems to indicate it to us as a duty to make reasonable for the enjoyment of our fellow-creatures, and not merely for their sustentation and material comfort.

The mention of the pleasure which we derive from beautifully coloured objects leads me to speak of the perception of colours. It may not be uninteresting to my audience if I go into this matter somewhat more fully than my proper task demands.

The subject of colour naturally divides itself into two parts, which we may call the objective and the subjective. In the first place, what is the difference between different lights by virtue of which they appear to us of different colours? In the second place, what is the nature of the subjective sensation according to which light appears to be of such or such a colour; or failing our ability to answer that, according to what laws is the sensation related to the character of the incident light?

As regards the first question you are doubtless familiarly acquainted with Newton's discovery of the compound nature of white light, and with the consequences which immediately follow from it. White light is a mixture of different kinds of light, namely, of lights of different refrangibilities. Light of any one refrangibility affects us with a sensation of colour, the colour differing from one refrangibility to another. Two or more lights of different refrangibilities when mixed together in general produce a sensation of colour, which according to circumstances may be paler (as if diluted with white light) or more saturated; and by mixture a colour (purple) may be produced which is not found in the spectrum, or in other words which is not produced by homogeneous light of any kind. Such is the answer to the first of the above questions.

A difference of colour necessarily implies a dif-

ference of composition, but the converse is not true, for two lights differing altogether in their composition, objectively, therefore, altogether different, may yet produce the same sensation of colour.

It has long been recognised that there appears to be a sort of triplicity about colour, that, apparently, three kinds of coloured light would suffice, by themselves or their mixtures, to produce the various colours that we see. This triplicity might conceivably be either objective or subjective. We might imagine that there were three kinds of light mixed together in the various lights which we see, even in any given part of a pure spectrum; that these, if they could be presented to us separately, would excite in us three different sensations of colour, the same for any one of the kinds whatever were the refrangibility, or mixed refrangibilities, of the light from which it was taken, supposing it could have been isolated; that the difference of colour of different lights depends on the difference of proportion in which the three primary colours are mixed together in it. We might even suppose it possible that the light of a given part of the spectrum might be decomposed, though not by refraction yet by some other means, into the three primary lights of the same refrangibility, but of the three colours which, on this hypothesis, by their mixture make it up.

On the other hand, we might adopt the subjective

hypothesis. We might suppose that we have, as it were, three colour senses; that any one of these, could it be excited alone, would give the sensation or a colour always the same, but probably more saturated than human eye ever saw; that any light presented to us, even the homogeneous light of a given part of the spectrum, excites simultaneously all three sensations, but in proportions differing with the nature of the incident light, that is, with its refrangibility, or, in the case of mixed lights, with the refrangibilities and the proportions of its components. This latter theory was that of Dr. Young, who took for the three primary colours red, green, and violet. The former theory was adopted by Brewster, who took red, yellow, and blue for the primary colours. Brewster even supposed that he had succeeded in effecting an alteration in the proportions of the three supposed constituents of a homogeneous ray of definite refrangibility by means of absorbing media. It has, however, been shown that the phenomena on which Brewster relied were the effect of illusions of contrast, so that the theory remains unsupported by a single valid experiment; and the overwhelming evidence in favour of the truth of the theory of undulations, a theory which leaves no room for such an objective triplicity as that supposed by Brewster, is a powerful additional argument against it. Moreover, the curious phenomena of so-called

colour-blindness are far easier to account for on the subjective theory.

Maxwell has demonstrated by actual quantitative experiments that (to use, for shortness, somewhat technical language) any proposed colour may be represented as a linear function of three standard colours, thus placing the supposed triplicity of the perception on a sound quantitative basis. Putting this along with the strong arguments in favour of the subjective theory, we have to seek for a triplicity of sensation in our own organisation.

Microscopical examination has not hitherto found anything in the eyes of mammals to indicate such a triplicity. It is remarkable, however, that in the eyes of birds and reptiles the rods and cones which form a sort of mosaic work paving the retina on the side remote from the centre of the eyeball, and which appear to be the percipient organs, are armed on the side towards the centre with coloured globules, which stand like porters at the gate, and are mainly of three colours, those of any one of the colours being pretty equably distributed over the mosaic, though the three are not all equally numerous. The precise office of these is not known for certain, but it undoubtedly seems as if they had relation to the stimulation of three kinds of nerves, in proportions differing according to the nature of the incident light.

It may pretty safely be assumed as an axiom that,

when light stimulates a nerve, it is itself absorbed in the process. We have, indeed, in the retina abundant indication of the passage of light across nerves of vision without stimulating them. For the nerve fibres which end in the rods or cones lie on their inner side, that is, the side towards the centre of the eyeball, where they form a plexus of filaments leading away to the optic nerve, the bundle in which they are collected before running into the brain. Accordingly, before getting to the rods or cones, the light has to pass across the plexus of nerves. But these, being transparent, do not affect the light nor the light them, and so the nerves which are thus traversed remain unstimulated. And that as a matter of fact they are not stimulated is shown by the very condition of distinct vision, namely, that an image shall be formed on the retina. For, if the light from a point in the object which is brought to a point on the retina stimulated the nerves of the plexus in passing across them, as well as the nerves ending in the rods or cones where the image is formed, it is not alone the nerves belonging to that point, but also the nerves belonging to certain points at a distance, that would have been stimulated, and the perception would be that of a confused image.

Assuming, then, that it is only in or at the rods and cones in which the nerve fibres end that the

nerves are stimulated, we seem to see in those coloured globules a provision for stimulating different classes of nerves in proportions differing according to the nature of the incident light. It is not unreasonable to suppose that the nerve fibres which are associated with globules of the same colour are also alike in the kind of colour-sensation which they give rise to when stimulated, while those which are associated with globules of some other colour form another class, the stimulation of which gives rise to a sensation of some other colour, and so for a third.

It still remains an open question in which of two opposite ways the coloured globules may be supposed to act. For facility of explanation, take the globules of some one colour, say red. We may suppose, in the first place, that the globules stand as porters in front of the percipient organ. On this supposition, they would allow only the red rays to pass on to the percipient organ, and therefore the colour perceived would be that the sensation of which is produced by the red rays, and would therefore be red. But we might also suppose that the globules are themselves the percipient organ, in which case the red rays are those which are allowed to escape without exciting the nerve, and therefore the sensation produced by the excitement of the nerves associated with the red globules would be that due to white light with the

red strained out of it, and therefore would be the complementary to red.

Such coloured globules have not been observed in the retinas of mammals, man included. But if we have evidence of a classification of the visual nerve fibres corresponding to a classification of colour in the eyes of birds and reptiles, it is not improbable that there may be a similar classification in the eyes of mammals, though microscopic examination has not at present revealed a visible distinction between fibres of one class and those of another, and no indication is at present known of a difference in the mode of excitement corresponding to a difference in the nature of the incident light.

What I have been saying is rather of the nature of a digression from my proper subject. Yet I do not think it is quite foreign to it. For when the construction and minute anatomy of the eye are studied in relation to its office, and to its adaptation to something altogether external to itself, namely, light proceeding in all directions from objects of all kinds, the evidence of design seems altogether overwhelming. It seems impossible to regard it as the mere outcome of casual variations taking place in a vast series of generations, combined with a selective preservation of the more advantageous.

To return for a moment to the point from which I diverged. We have seen what an elaborate provision

there appears to be for the perception of different colours. I say "there appears to be," for at present we are far from having been able to follow it so as to understand it; we can only judge by some indications. If we knew more about it; if we knew as much about it as we do of the office of the eye in relation to the perception of form, it seems probable that the evidence of design in relation to the perception of colour would strike us still more strikingly than it does. In our present condition of ignorance, unable as we are to get more than some glimmering indication of the means employed, we have chiefly to depend on the end accomplished. If we imagine ourselves seeing everything in monochrome, like a photograph, we shall readily understand of how much pleasure we should be deprived by the loss of colour. Our present convenience too would be much interfered with. There could be no such thing then as signals depending on colour, or as picking out objects by their colour from among other things that they lie among. As regards such a thing as signals, doubtless others could be devised to take the place of those that we actually employ, and on the whole it seems that our loss would be far more in the deprivation of the pleasure we enjoy from the beauty and variety of colours, than from the inconvenience of being debarred from the use of certain means of discrimination which we at present

freely employ. And this leads me again to my point of departure, namely to the recognition of the bounty of the Creator in providing for the enjoyment of his creatures.

I have already in former lectures dwelt on the way in which we are led by the study of nature to recognise the necessity of something more than the mere laws of nature as they are called to account for the existing state of things; something demanding will, capable of design, something accordingly which leads us up to a personal Being, personal however in that sense, not as involving the limitations to which personality as we know it in ourselves is subject. But if the existence of such a Being is admitted, we cannot well imagine Him to have merely called into existence countless ages ago the system of things that we see going on, and then, if such an expression may be used without irreverence, withdrawn Himself from it; we are bound to think of Him as the Governor and Sustainer of His own creation. We find that the processes going on in that material world which is external to us are conducted according to general, uniform laws. Science stops in the discovery of these laws, and the tracing out of the results which flow from them. But from the higher standpoint from which we regard the system of nature, when we think of it as originating in a

Supreme Personal Cause, we are led to look on these laws as His mode of working. I need not repeat what I have already said on a former occasion, that such a view forbids us to reject the possibility of what we picture to our minds as a more direct Divine intervention, representing it thus to ourselves as being out of the usual course. But this is a point which my more immediate subject does not lead me now to dwell further upon. I have also referred to the idea of God as a Spirit holding communion with our spirits, and to the subject of prayer. I would just observe in passing that such communion may be just as much a law of our spiritual being as the laws which science investigates are of the material world.

The question which I propose at present to discuss is, Whether and in what sense we are at liberty to pray for material advantage, or what we suppose to be advantage, such as recovery from sickness, fair weather for harvest, and things of that nature? It might be said, These are all regulated by perfectly definite laws; of what use can it be, nay, is it even lawful, to pray for such things as these?

Prayer involves the earnest expression as before God of a desire of something as from Him, which we hope, subject to its being in accordance with His will, that He may grant us. Let us take an imaginary case. Suppose that in bygone times, before men

knew anything of astronomy, the commander of an army engaged in a righteous and necessary war deemed it of the utmost importance to make a night attack upon the enemy under cover of darkness. Unfortunately the moon is near the full, and the attack could not fail to be discovered. He knows nothing of the causes of eclipses or of the times when they may occur; he merely has noticed that sometimes when the moon is near the full her light for some reason or other fails for a time, long enough to allow him to move his troops without being perceived by the enemy. He considers the contemplated attack as of vital consequence to him, and he prays that one of those failures of the moon's light, which he has occasionally seen, may take place. Is that a prayer which he might lawfully make? If the eclipse happens (as an astronomer might have foretold that it would happen), is the supposed commander wrong or foolish in looking on it as an answer to his prayer?

Now, in the case supposed, all the essential elements of prayer are present, an earnest desire, a looking up to God to grant, if it might be so, the fulfilment of the wish, and then, perhaps, the thing wished for has happened. The commander was not concerned in the way in which the thing was brought about. All he wanted was that the eclipse should take place. It is no business of his to inquire what

would have occurred *if* he had not prayed as he did.

But suppose a modern commander with an almanac in his baggage were in exactly the same condition. He knows whether or no the eclipse is predicted to take place. Supposing there is no eclipse predicted, he might feel that it would have been immensely important to him if an eclipse were going to take place, but he may put that out of his head. He has no expectation that the whole course of nature will be altered, and the predictions in the nautical almanac falsified, in order to suit his plans. To him, therefore, to pray for an eclipse would be impossible. For him to utter a prayer for one would be wrong; it would only be a profane mockery.

If we look on the order of nature as carried on in accordance with the will of God, then, according as we know more or less of the laws of nature, we may regard it that we know, in a certain department, more or less of His will. According, therefore, to the state of knowledge of the possible supplicant, it may be that the very same thing is by one man confidently regarded as a thing that is not to happen, by another as a thing that, for aught he knows, might be granted in accordance with his request.

This imaginary example may prepare the way for the consideration of a question to which, very likely, there would not be a unanimous answer. Is it lawful,

or possible, to pray for fine weather, with a view, suppose, to a plentiful harvest?

Those who are disposed to give a negative answer to this question might urge such considerations as the following:—The weather is determined by solar radiation taken in conjunction with the warming of the earth's surface by the absorption of radiant heat, the emission of heat by warmed bodies, evaporation, the precipitation of vapour in the form of cloud, rain, etc., and the rotation of the earth, which, besides causing the alternations of day and night, with the corresponding thermal changes, has, for dynamical reasons, such a powerful influence in causing the winds. All these are carried on in accordance with perfectly definite physical laws, as regular as those which determine the places of the planets in their orbits, places which, from our knowledge of the laws, can be calculated years beforehand. It is true that we cannot calculate in a similar manner the weather beforehand; the various causes at work are combined in too complicated a manner to permit of that. But what difference does that make? Is not the weather fixed beforehand just as much as an eclipse? What right have we to pray for fine weather any more than that an eclipse should happen out of the regular course?

Now, admitting for the moment that the weather *is* thus fixed (a point which I shall return to almost

immediately), is it clear that that circumstance makes such a difference as to render such a prayer as we have been contemplating improper? Contingency depends upon the imperfection of knowledge. Absolute knowledge excludes contingency, but because our own knowledge is necessarily limited, therefore *to us* there *must* be such a thing as contingency; we cannot get rid of the idea. With the exception of such probable forecasts as may be made for a time not far off, the future of the weather is as much unknown to us as something which depends on the will of an unknown human being. Nothing prevents us from hoping that it may be of such or such a character, and why may we not express a hope which we may feel, even express it in words of prayer? But, if we do so, our motive for the wish must be such as we can bear to think that the Searcher of hearts regards, and not merely some selfish end. It would be a very different thing, for instance, according as we had in view the preservation of the food of a nation and the comfort of the poor belonging to it, or merely the pleasure of some private excursion.

I grant, however, that if our thoughts were steadily fixed on the idea of the invariability of the laws on which the weather depends, it would be calculated, if not to prevent, at least to damp, the offering of prayer for favourable weather. But does our physical

knowledge authorise us in saying that the course of the weather is as much fixed as that of the planets in their orbits? I doubt it. There is much tending to show that the state of the atmosphere depends a good deal upon a condition of unstable equilibrium. The phenomena of ordinary thunderstorms seem to show that they are brought about by the rapid ascent of columns of heated air highly charged with the vapour of water; that we had, in the first instance, a stratum of air contiguous to the earth warmer and more highly charged with the vapour of water than the air above, and that these conditions of the lower stratum went on increasing till the equilibrium became unstable, like that of water resting on olive oil, till at last a chimney or chimneys were formed consisting of air rushing upwards. This is not the only phenomenon indicating an instability of equilibrium, but it will suffice for my purpose. Now, the character of unstable equilibrium is, that it is a condition in which the very slightest disturbing cause will suffice to start a movement which goes on accumulating till it produces a complete alteration of position. It is perfectly conceivable that a child, by lighting a bonfire, might produce an ascending current of air which in peculiar cases might suffice to initiate a movement which went on accumulating till it causes the condition of the atmosphere to be widely different from what it would

have been had the child not acted as I have supposed. It is not, therefore, by any means certain that the condition of the weather is solely determined by physical conditions the effect of which could even conceivably be calculated beforehand. Hence it is conceivable that a change in the future of the weather might be made without any interference with the physical laws actually in operation.

If the object of our desire be the recovery of a friend from sickness, it is obvious that far more enters into his progress than merely the operation of physical or physiological laws. The soundness of judgment of the physician, the carefulness of the nurse, may have a great deal to do with his recovery or the reverse. There is not, therefore, in this case, as in the case of the weather, the preliminary difficulty leading to a questioning of the propriety of praying for the accomplishment of the object of desire.

Yet, even in this case, the utility of any such prayers has been called in question. Some years ago, a proposal was made to test the thing by experiment; to take two hospitals, as nearly alike as might be, to pray for the patients in the one but not for those in the other, and to observe the result. But it is obvious that the conditions of the proposed experiment are such as to render prayer in such a case absolutely impossible. It would be impossible

for a man with such an object in view to raise his heart to God, conscious as he must be that his motive is one which he dare not express. The suggestion, in fact, involves a confusion between two totally different things, praying and saying prayers.

LECTURE IX

Man's liability, without assistance, to err even as to the knowledge of duty—Theories as to the foundation of duty—The Utilitarian System—The system of Innate Ideas—Advantages of the latter—Classification of moral virtues—Duty of Truthfulness—Examination of various doubtful cases—Application to commerce—To the treatment of polygamy in non-Christian countries.

I HAVE referred more than once to the desire expressed by Lord Gifford that his Lecturers should treat their subject strictly as a science, without referring to or depending upon a supernatural revelation, and have expressed the difficulty I felt in consequence of this restriction. Yet something may be done, and has been done by various writers, in the way of what may be called a scientific treatment of the subject. In fact what the Christian revelation (assumed to be true) is calculated to supply is not so much information as to what duty consists in, as motives calculated to lead us towards the fulfilment of it, and strength to oppose those inclinations which would urge us in a contrary direction. The question what we ought to do may

be considered apart from that of the fulfilment of our duties, and lies within the domain of man's moral faculties. Even a heathen poet could say, *Video meliora proboque, deteriora sequor*, "I see the better and approve, the worse I follow," words curiously analogous to those in which St. Paul describes the condition of a conscientious man who seeks to attain justification by obedience to the moral law. The knowledge of good and evil belongs to our moral nature, and may accordingly be treated of by the aid of our natural faculties. Of course the kind of faculties called into play in such a treatment are quite different from those exerted in the study of geometry or physics, but it does not therefore follow that they are other than natural powers of the mind.

But though this be so it does not therefore follow but that we may be immensely assisted even in the mere knowledge of duty by a supernatural revelation if such there be. The duties I have here under consideration are what may be called moral duties as distinguished from positive institutions. It has been said that some things are right because they have been commanded, and some things have been commanded because they are right, and it is the latter class of duties with which alone I am here concerned. But even as regards these, though they lie, as I have said, within the domain of our natural powers, there

is great liability to error in several cases as to what ought to be done. In the first place, there may be a variety of considerations, some tending to show that the right course is in one direction, and some that it is in the opposite direction; and even with good intentions it may happen that some of the considerations are forgotten, or the balance not properly taken. I will not repeat what I said in a former lecture as to the sort of responsibility that lies on a man who acts as he ought not but mistakenly supposes that he ought. But there is a far more serious source of error even than this. Our judgment as to what is right is liable to be warped by what we wish to be at liberty to do. The common proverb, "The wish was father to the thought," indicates the common recognition of such a tendency. The yielding to what is felt to be wrong, though deemed perhaps to be only very slightly wrong, helps to blunt our perception of the wrongness of it; and if such warnings are disregarded, then our whole moral tone gets gradually lowered, and perhaps we do wrong without thinking that it is wrong, in fact, perhaps, without thinking about it at all. And as man is a social being, he is greatly influenced by the tone of the society in which he moves, and so men encourage one another in disregarding little sins till they cease to be looked on as sins at all. It is then easily intelligible how much the moral tone of mankind might be raised could they

have the advantage of a teacher exempt from the imperfections to which even good men are subject, even were nothing taught beyond what man might conceivably learn of duty by the exercise of his natural powers.

But having said thus much, lest I should seem to ignore the great advantage which might accrue to man from a direct revelation from God, I return to the point from which I diverged. What is the foundation of duty? What is it which constitutes the rectitude of such or such a course, and how is a man to ascertain what course *is* right?

Perhaps at first sight we might be disposed to answer, That course is right which is in accordance with the will of God. Now true though this answer may be, it leaves us just where we were, for the question immediately arises, How are we to know what *is* in accordance with the will of God? Of course I am not now referring to revelation, for the question is, What can man attain to by the exercise of his natural faculties?

The utilitarian school of moralists would have us look to the consequences to which our actions tend. As we believe that God wills the happiness of His creatures, we must suppose that that course which tends to happiness, to the general wellbeing in the widest sense, is in accordance with his will, and is right. And doubtless there are many cases in

which the beneficial or injurious consequences of an action are so manifest that this consideration seems to offer a sufficient guidance. Yet it can, I think, be of only very limited application, for this reason. In order that the principle may be true, the word happiness must be taken in its very widest signification, as including all the consequences, to ourselves and to all other men, that may in any way be affected by the action, consequences too that are not merely confined to material wellbeing, but extend to what is inward and mental, to the formation of character, and all that follows therefrom, consequences remote as well as immediate, and which influence an ever-widening circle. But when taken in this extended sense the consequences form a whole which it surpasses the power of man to estimate. Hence this rule, if we attempt to use it as a general guide, leaves us very much in the same condition as that first mentioned.

Nor is this all. An undue dependence on the supposed consequences of our actions tends to bring into undue prominence those consequences which are outward and material, to the neglect of those which are inward and mental, which may often be by far the more important, though at the same time by far the more recondite. Hence there appears to be some danger that this system may have a tendency to lower the tone of our minds in relation to moral problems.

Another school of moralists hold that we have an innate consciousness of right and wrong; that our consciences approve or condemn certain actions prior to and apart from a consideration of their consequences. I think that such is the conclusion we should naturally come to from our own feelings. Of course first impressions may be wrong, and a scientific investigation of the whole question may prove them to be so. But they are at any rate worthy of most serious attention, though we should be prepared to consider any objections which might be urged against them. In geometry we have our first principles, or axioms, the truth of which strikes the mind with irresistible force, and behind which we cannot go, though from them we may deduce a great system of geometrical truths. Why should there not in morals, too, be first principles of right and wrong which are admitted as self-evident, and which form, or ought to form, the rule of our actions?

But it may be said by an objector that we cannot judge by our own feelings, for we have been educated, and early taught some particular form of religion; how do we know but that those feelings are merely the result of education; we should go to man in his very rudest state to find what would naturally be accepted by him as self-evident. But apply the same to, we will say, geometry. If we

were suddenly to lay before an uninstructed savage the axioms of geometry, a thing altogether new to him, and on which he had never exerted his reason, he would probably, at first, not be able to take the thing in. But a little exercise of thought, under the guidance, suppose, of some one who would just start him, would suffice to enable him to perceive the necessary truth of these fundamental principles. And it is just so as regards axiomatic moral truths; the cogency of their truth may not be perceived till the mind has been a little exercised about them. But even among uninstructed tribes there may be more perception of moral truths than we should have been disposed *a priori* to give them credit for. I recollect reading in Livingstone's Journal that some of the native Africans told him that everything that he had told them was wrong they had themselves previously known to be wrong, except only the having more than one wife. For my own part, I think that those moralists who hold the second of the views which I have mentioned have the best of it, and that there are feelings of right and wrong implanted in the mind, and felt to be true, though requiring, it may be, the exercise of some thought to bring them to the surface. Nor is it in the least opposed to such a view that those who have received religious training, provided it be on the whole of a correct kind, should be better able to

perceive the force of what I have been regarding as first principles of morality than those who have been left to themselves and have not had the benefit of such instruction. Again, there is nothing in the system opposed to the assertion that that is right which is in accordance with the will of God, or to the assertion that that is right which, in the widest sense of the expression, tends to happiness; only, instead of referring us to that which is intangible (of course I am putting out of view the possibility of a revelation made by supernatural means), or to a test which in very many cases it is quite beyond our power to apply, it refers us to that which is within us, to a foundation on which a superstructure may be raised, though it may require some attention to find the foundation, and, in the case of previous education in a false religious system, the clearing away of some rubbish before the foundation is reached.

Doubtless, extreme evolutionists would not be content with such a view as this. Holding that man, with all his powers, gradually came to be what he is through purely natural causes, by a slow continuous alteration of some form of life utterly and completely different, they are bound, for the maintenance of their system, to regard his moral feelings as the outcome of some system of evolution. Now, I have no claim to be a biologist, but I am not pre-

pared blindly to surrender my judgment in such matters to those who are, and I must say I fail to see any sufficient scientific evidence, or any evidence approaching to sufficient, that man's bodily frame originated in the manner supposed; and if there be no sufficient evidence that his material body originated in such a manner, it would hardly be contended that his mental powers, moral as well as intellectual, did originate in an analogous way. To me it seems to be the simplest to suppose that man's mental powers, as well as his bodily frame, were designed to be what they are. How that design was carried out we have no means of knowing, and it does not concern us to inquire; but, assuming that it was so, I see no difficulty in supposing that man's innate sense of right and wrong was as much impressed upon him, as little the creation of his own will, as his bodily frame. If that be so, we may even look on this innate sense of right and wrong as the will of God written upon the heart, and some rules of guidance may be obtained even without having recourse to a supernatural revelation. I say "rules of guidance" as distinguished from motives leading us to the following of those rules, motives surpassing in efficacy what can be supplied by mere natural reason.

If we may look on the moral sense of man as

man, stunted though it may be for want of culture, and enfeebled by the effects of acting in a manner opposed to what is felt to be right, as the will of God written upon the heart, that establishes a bond of union between man and man, even between the highly civilised man, who may have had the advantage of training in an elevated religious system, and the uncivilised man who has had little or no training at all. And it further teaches us that if we would instruct the uncivilised man in what we believe to be a true and advanced religious system, we should not ignore what we find of good in him, but use that as a foundation on which what is better may be built.

There was a time, not so long ago, when this principle was rejected or ignored, and the mind of the untutored man was looked upon as utterly destitute of good, which had to be supplied from the very beginning. But our missionaries have now learned to respect what they find of truth and uprightness in the mind of man, even though he belong to a savage tribe, and to build upon it. And the reaction at present set in seems rather to tend, in some quarters, towards an idea of the sufficiency of natural religion for the supply of all our wants in that respect, and a rejection or disregard of the vast assistance to be derived from a source above that of man's natural powers.

I propose to devote this and the next lecture to a consideration of certain duties which are naturally felt to be such, at least when the mind has been instructed, with more particular reference to cases in which the application of fundamental principles is more or less obscure, or has been disputed.

With a view to a more systematic treatment of the subject, moralists have divided moral virtues into classes, which different writers have taken differently. Whewell makes a division into five classes, those of Benevolence, Justice, Truth, Purity, and Order. Whatever classification we make, there must, I suppose, be numerous cases in which two or more of these virtues are jointly concerned. I will not attempt to make any exhaustive or even strictly methodical treatment of the subject, a task for which my own studies do not qualify me, and respecting which formal treatises have been written, which those may consult who wish to go thoroughly into the matter. I propose to devote the remainder of this day's lecture to a consideration of the rectitude, or the reverse, of some courses of conduct which come mainly under the head of truth, though sometimes, it may be, trenching also on other classes.

The duty of truthfulness, in many of its commonest aspects, borders on that of benevolence. Suppose I

am asked a question by a friend, or even by a stranger. The inquirer wishes for information on some subject, with which I am able to supply him. The fact of his asking me implies a trust which he imposes in me. To give him a false answer involves a breach of that trust, and such breaches, if they became at all common, would loosen the whole framework of society, would go far to destroy all confidence between man and man. Of course the person asked may decline to answer, unless the question be put in court, or by a person to whom it is, for whatever reason, a duty to return an answer.

The sin of the untruthfulness depends on the intention to deceive. A statement may be made in words which, taken literally, are untrue, but which have become so well understood in a conventional sense that nobody concerned is deceived. For instance, to say that a person is not at home, when the intention is merely to express that, at home or not at home, he or she is not accessible to visitors, provided the convention is commonly understood, and the use of the expression does not disturb the conscientious feelings of the person called on to make it, can hardly be deemed an untruth. At the same time, I think that such a convention could hardly have become established if there had not been an undue laxity as to truthfulness.

On the other hand, words may be uttered which,

taken by themselves, are not untrue, but which yet, being spoken with the deliberate intention of deceiving, must be held to be virtually equivalent to a lie. For example, a person may make a garbled quotation of something written or spoken by another, omitting something important, not for the sake of shortness (though that, of course, would be involved), but with the deliberate intention of misrepresenting what was said or written. Such conduct really involves untruthfulness, with the additional element of meanness, because the person's intentions are hid in his own breast, so that, whatever may be suspected, the charge of untruthfulness cannot be brought home to him.

To take another case. Suppose a man intended to commit some great crime, say murder, and that he was going after his intended victim. Suppose another man knew him to be a man of excessively bad character, and had the strongest evidence, short of legal proof, that he meant to commit the murder. Suppose the intended victim (N) passed by the second man on a road, and presently the first man comes up to the second, and asks him which way N had gone. Would the second man be justified in misdirecting the first, telling him that N had gone by a road by which he did not go, in order to save N's life?

In order to arrive at a solution of this moral problem, we must, I think, go back to first prin-

ciples, and inquire, On what is it that the obligation to tell the truth rests? Now, according to what was advanced above, it rests upon mutual confidence, mutual wish to assist each other, without which the bonds of society would be loosened. And it is noteworthy that the reason which St. Paul gives why we should speak truth each man with his neighbour is that "we are members one of another." But if a man is practically known to have deliberately formed the intention of taking away the life of another man, he constitutes himself thereby virtually an outlaw to society; he cannot claim the services of his fellows, or to be treated as if he were a member of society. It seems to me, accordingly, that in the case supposed the second man *would* be justified in intentionally deceiving the first in order to save the life of N.

Let us take another case. I am not going to discuss the question of the morality, or the reverse, of war; I merely take it as a thing which does exist from time to time. Suppose, now, two opposed armies are in the field, and a battle appears likely to be imminent. Suppose the general of one army marches his troops in such a manner as to lead the general on the other side to suppose, and with the very object of leading him to suppose, that he was going to deliver the attack in some particular manner, though all the while he had made up his mind to

make it in a totally different manner. Is this deceit condemned by the law of truthfulness?

Perhaps it might be said, Is not this simply to act a lie, and what is the difference between acting a lie and speaking it? Is not the intention in both cases alike simply to deceive? Suppose the commander of one army sent a message to the commander of the other pointing out the great advantage there would be to both armies of a little rest, more especially to that led by the second commander, and saying that he would abstain from offensive action for twenty-four hours if the second commander would in like manner refrain, as he would assume that he would; and suppose that when the second commander was thus lulled into a false security the first took advantage of it to deliver his attack; would you say that such a lie was lawful as there was no formal truce? And what is the difference between the two cases? There is, however, a difference which is easy to see. War is bad enough in any case, but its horrors would be heightened if there were no such thing as good faith on the two sides, unless indeed in the face of an agreement drawn up with all legal formality. A message implies a more or less confident expectation on the part of the receiver of it that the party sending it means what he says; otherwise there would be no use in sending it; and the fact of the two armies being engaged in a struggle, even one of life

and death, does not justify them in regarding, or even lead them to regard, each other as if they were not moral beings. But the mere marching of troops *as if* the attack were going to be made in such or such a manner does not in any sense whatsoever involve the reposing of confidence on the part of one commander in the other; they both know perfectly well that they would outwit each other if they could. The artifice resorted to does not, therefore, involve any violation of the law of truth.

There is one form of untruthfulness which is so very common that it hardly attracts attention. I allude to advertisements which claim all sorts of merits for the article advertised. Of course it is perfectly fair to set forth to the utmost its real advantages; but one constantly sees advertisements which have a most suspicious look of going far beyond that. Perhaps this is especially the case with regard to quack medicines. Of course a man may have discovered some really valuable remedy which he keeps to himself for the sake of gain (though in the regular profession it would, I believe, be considered a point of honour to make it known, for the sake of humanity); and even if there be nothing special about what he offers, it is for his pecuniary interest so to compound it as to make it as generally useful as he can. But one can hardly imagine that one and the same remedy is

available for pretty nearly every disease under the sun. Apart from questions of morality, it is politic not to make the statement too glaringly untrue; but in so far as the advertisement may contain anything distinctly false, which is put in merely for the sake of a puff, the framer of it cannot be exempted from the charge of untruthfulness. For what does he do but wilfully deceive others for the sake of improving his own income?

In the eager pursuit of gain which takes place in a commercial nation, there is a constant temptation to steer as close as possible to the wind in the matter of truthfulness; and if the limit be transgressed there is danger that its transgression by one man may encourage another, who perhaps will excuse himself by saying that it is only a recognised convention. If it were universally recognised as a convention, there would be no use in making it; it is only through being but partially recognised that it becomes a source of gain. It is true that in the long run everyone may come to know it, and then it ceases to be gainful, while anyone who went back to a strictly truthful statement would without special precautions run the risk of putting himself at an unfair disadvantage. But much that is objectionable must have been passed through before matters could come to such a state as this; and even in that final state the thing does harm by accustoming the mind of

the public to regard leniently such breaches of truth.

Many years ago a case came before the law-courts which was nearly the same thing as a false advertisement, and was commented on by the presiding judge with deserved severity. It was that of a manufacturer who turned out spools of thread which were labelled as containing so many yards, though the real length was considerably short of that stated on the label. If it be said in excuse that the customers, the wholesale purchasers, were well aware of this, the answer is that if the wholesale purchasers were aware of it, the ultimate consumers, the retail purchasers, would not be, so that there was cheating in the end, and the only doubt would be on whose shoulders the guilt of it lay, or how it was to be apportioned between them.

We should probably be ready to condemn at once the practice to which I have just referred. But I cannot see that it differs in principle from the commoner case of a false advertisement, or one so exaggerated as to be virtually false. The difference is that in the one case the false statement is perfectly definite, and the falsehood of it is perfectly easy to prove, which usually is not the case in the other. But this is a distinction which has reference rather to the facility of detection of a fraud than to the morality of the transaction.

There is one form of departure from perfect sincerity which is hardly thought of as involving untruthfulness, and is very insidious and very common with us; I allude to the doing of something for the sake of appearance, with the very design of leading others to think we are different from what we are. Now, I do not say we are bound to proclaim all our faults before the world; it would not be advisable that we should, even if we looked solely to the effect upon others, and disregarded altogether the pain it might be to ourselves. What I have in view is the doing of something that it would be better we should not do, in order to lead others to think that we are different from what we are; or even the doing of something which would be right *if* it were done from a right motive, when right motives are wholly absent, and it is done merely for the sake of appearance. We hardly perhaps think of it as wrong, and yet it seems to me that evil comes of it. In worldly things it leads to extravagance, from a desire to appear to be above our proper station. In matters relating to religion it leads to hypocrisy, to the pretence to be better than we are; and besides the injury to ourselves, this is calculated to be injurious to our neighbours, by leading them to overestimate us, and thereby to palliate in themselves faults, the like to which they see in us.

From very ancient times the practice has existed

of using an oath for greater security of the truthfulness of an asseveration, or the fulfilment of a promise. It is assertions only, not promises, that for the moment I am concerned with. False swearing has always been considered as a more serious offence than making a false assertion not supported by the solemnity of an oath. It has been disputed whether the form of oath in use with us involves an actual imprecation, or only a solemn reference to the Divine Being as before whom the assertion is made or the promise taken. On either supposition it is a solemn thing, and should be treated as such. We know that wilful perjury is severely punishable by our laws. It is, however, in many cases difficult to prove, and it is to be feared that in our courts it is far from rare.

The fulfilment of promises is another branch of truthfulness, differing from the former in that it relates to the future instead of the past. I assume that at the time of making the promise the promiser intends to keep it. If he does not, it involves a lie at the time, as well as a subsequent breach of an engagement, unless indeed the latter be removed by a subsequent repentance, and the person keeps to his engagement though he had not intended to do so when the promise was made. Of course I do not mean that that wipes out the guilt he incurred by making a promise which he did not mean to keep; only that it involves a departure from the sort of

chronic guilt which the person lies under for a continual disregard of his promise.

I have been tacitly supposing that the promise is of something which it is lawful for the promiser to do. As the promise is of the nature of an informal covenant (I say informal, because if it were formal the law would step in) entered into between the promiser and the person (or, as it might be, the body of persons) to whom the promise is made, it stands to reason that the person to whom it was made may, if he likes, release the promiser from the fulfilment; and in such a case the mere fact that the past words used by the promiser are not going to be made true, though he has the power of so making them, does not bring him under the charge of untruthfulness. It need hardly be said that if the second person (the one who received the promise) should have made some stipulation with a third party the carrying out of which is impossible unless the first person keeps his engagement, the second person is not at liberty to release the first from his engagement without the assent of the third.

It has been discussed by moralists whether a promise to do something unlawful should be kept. It may be argued that the promise should be broken because the act promised was unlawful. It has been said that if the promiser repents of having made the promise, on account of its unlawfulness, he should

go back to where he was when he went wrong, that is, to where he stood when he made the promise which he ought not to have made; that the promise, being of something unlawful, has no validity.

I think that this decision is sound as a general rule, but that is not without exception. There is a common maxim that such or such a thing ought not to have been done, but, having been done, should stand good. If the circumstances remain as they were when the promise was made, then I think, the thing promised being unlawful, the promise should be deemed invalid. But it may be that on the strength of the promise something has been done which changes the circumstances of the case; that in consequence of the change the execution of the promise has become the less evil of the only two possible alternatives. It then becomes right irrespective of the promise, and the promiser is not released from his promise.

A broad distinction must be drawn between a promise of doing that which is unlawful and an unlawfully extorted promise of doing that which is lawful. The unlawfulness of the exaction does not release the man from the performance of the promise. Suppose, for instance, a man was seized by banditti, who gave him his choice of being put to death or, through his friends, undertaking to pay a certain ransom. He has his choice; and if he prefers the

latter, he enters thereby into a covenant with the banditti for securing a certain favour, namely, the sparing of his life, which they had the power, however unlawful its exercise, to take away.

The engagements which I have had in view in what I was saying just now are such as are of an informal character. As regards the fulfilment of contracts of a more formal character, questions of morality hardly come in, since they are commonly made in legal form and the law provides for their execution. But there is one contract of the highest importance with relation to the whole state of society, regulated in part by the law of the land, but in part also by a still higher law, regarding which it may be desirable to make a few remarks; I allude to the contract involved in the married state. The whole stability of the fabric of society, the whole of family life and the orderly bringing up of families of children, depends upon its being kept inviolate. Doubtless, the tone of feeling on this subject in the country generally is not so high as we might desire, but happily we have not at present sunk so low as to regard incompatibility of temper or of tastes as a ground for divorce.

But I have only introduced this subject, about which there is no great difference of opinion, in order to pave the way for the discussion of a more knotty question about which opinions are much

divided; and that which appears to find the greater favour seems to me opposed to the first principles of morality.

In all Christian countries monogamy is the law; and that such it ought to be is shown, even without going further, by the physical fact of the approximate equality of the numbers of the two sexes in a large population. But in non-Christian countries the law, or recognised custom having practically the force of law, very commonly allows of polygamy; and the system of family life, such as it is, is built up in accordance therewith. Suppose now that Christian teachers go forth, and as a result the people, or some of them, are led to believe in the Christian religion, and are desirous of sharing in Christian privileges. Are they to be admitted in spite of polygamy; or is a polygamist to be told that as a condition of admission he must put away all his wives but one; or is he to be told that he must be faithful to his wives and keep them, but he cannot be admitted to Christian privileges till all of them but one are dead, when, should he still be alive, he might be admitted?

It seems to me that this is pre-eminently a case for the application of the maxim already referred to; that as regards the polygamy entered into in a state of ignorance, it ought not to have been done, but having been done, it ought to stand. The system

of family life already established, imperfect though it was, is surely better than the result of a wholesale system of divorce. I fail to see anything to justify the repudiation of the marriage-contract which had been already entered into. Such, it seems to me, is the plain indication of natural religion. I may not discuss the question on Scriptural grounds, as it would be foreign to the object of these lectures, but there can, I think, be no harm in mentioning my own opinion, and for my own part I feel a deep conviction that such is also the teaching of Scripture. I would, therefore, absolutely reject the second of the alternatives mentioned above, though this seems to be the one most favoured, at least by those who sit on committees at home, and have not had personal experience of the state of things on the spot. As to the choice between the first and third, that is a question hardly belonging to Natural Theology, inasmuch as it has to do with Christian privileges; but for my own part I think the first is the right course, as I have elsewhere explained.

However, the condition of different non-Christian countries is doubtless very different, and where polygamy prevails there are probably all varieties between a regulated system of family life, imperfect though at the best it be, and a condition which hardly deserves the name of marriage at all; and those who have worked on the spot in this or that country have

materials for forming a judgment which are not possessed by those at home. But the experience gained from one country may not at all indicate what is best for another, so that local experience needs to be controlled by the application of general principles. All I contend for is that the established order of things has *primâ facie* a claim to be respected; a claim, as I believe, not alone based on natural rights, but also on the teaching of Scripture; a claim which it would be *wrong* to set aside without *very grave reason.* But I do not deny that in particular cases the state of things may be such that it may be necessary to have recourse to what I should myself regard as the heroic remedy of repudiation.

I have dwelt at some length on examples of cases, falling most properly under the head of truth, in which the path of duty seemed to be more or less indistinct, doubtful, or disputed. I propose to discuss some other instances, which would fall more properly under other heads; but this I will leave to my next lecture.

LECTURE X

Duty of Benevolence—Its relation to bargains—Discussion of the lawfulness of trade in articles which may be abused—Alcoholic beverages and opium—Aid to the poor—Kindness to animals—Duty of obedience to the law—Questions arising if the law enacts what is morally wrong, or forbids what is allowable—Question as to the moral lawfulness of certain marriages—Changing views as to the relations between science and religion—Influence of extreme adoption of evolution—Conclusion.

Of all our duties, one of the most clearly written on the heart, and at the same time one of the most widely extending, is that of benevolence; in other words, that of wishing well to our fellow-creatures. The precept to do to our fellow-creatures as we would that they should do to us has been called the golden rule, and covers a very large part of our duty. What we ought to do in accordance with this rule is in very many cases so obvious that it need not be dwelt upon. But there are cases again in which the proper application of the rule is not so evident, and cases even in which a slavishly literal interpretation of it might be actually injurious.

For example. We may ask the question, In what way, if at all, does the rule apply to the making of a

bargain? Suppose A has something to sell, and B is desirous of having it. B would naturally like to get it cheap. If A were in B's place, the purchaser instead of the seller, he would naturally like to get it for a small sum; does that circumstance constitute it the duty of A to sell the thing for some small sum? This is a case in which a direct application of the principle on the part of A in the most literal manner is checked by the consideration of the reciprocity of the obligation. I assume that both parties are free to make or not to make the bargain, so that if made it will be an advantage to both. In this case, there does not appear to be any reason why the advantage should be divided just equally between the parties, or that it would be obligatory so to divide it if it were possible—which in most cases it would not be—to assign a numerical measure to the advantage on both sides; for, of course, in the term "advantage" I include all considerations of convenience, etc., which it is impossible to estimate quantitatively.

The duty of benevolence, of wishing well to our neighbour, does not involve an utter disregard of our own interests. The duty of justice towards others is one which is well recognised, but surely it is permissible to be just towards ourselves. I say "permissible"; I do not say that it is a duty, for we may do what we will with our own. If in the term "ourselves" we include our families, then indeed it

may even be a duty to be just to ourselves. But this is because we have unduly extended the meaning we attach to the term "ourselves," and what we are really called on for is to be just as between those depending on us on the one hand and a stranger on the other.

And yet there is a higher sense in which we may regard it as not merely permissible but even a duty to be fair to ourselves as well as to our neighbour in such a transaction. If we regard our property as in a certain sense not our own, looking on ourselves as stewards having the management of it, and bound to use it in a manner not merely just according to human laws, not merely reputable according to the notions of society, but so as to turn it to useful account towards our fellow-creatures, it becomes our duty not to disregard our own interest in such a transaction as I have been supposing. In fact the present case differs from that last considered merely in this, that whereas in the former case the excess of what A might require from B as a fair value over what B if he had his own way might like to give, if indeed he liked to give anything, is designated to a purpose known beforehand, and which I will assume to be good, in the latter case the purpose to which it is likely to be applied is at present unknown, and is merely assumed by A to be good because it is his intention that it shall be.

And in this point of view A's knowledge of the character of B may quite reasonably affect the remuneration which he is willing to receive. Whatever A receives short of an ideal sum which may be looked on as a fair equivalent, is to be regarded as so much transferred from the custody of A into that of B. Now if B be an upright man, of high character, A may feel that the excess is quite as safe, for being made a good use of, in B's keeping as in his own. In such a case he may gratify his kindly feelings towards B by letting him have the thing on easy terms. But if B be a bad man, A's surrender to B of what he might fairly expect, in order to gratify B, so far from being a duty under the golden rule, is rather of the nature of the dereliction of a trust.

In any bargain either party may of course make a mistake as to what is really for his advantage, but in ordinary cases each may fairly be assumed to be the best judge of what is to his own interest, and the bargain may be made with a safe conscience on both sides. But this general rule is not without exception. Suppose, for example, one of the parties were a child not competent to judge, or an imbecile, and suppose for some reason or other he were not under the protection of the law, does this fact give a *carte blanche* to the other party to get what he can out of him? I think there would be a very general agreement of opinion that it does not. The require-

ments of morality, of conscience, go beyond those of mere law, and not everything which the latter permits is allowable under the former, even as regards matters, such as commercial transactions, which are in great measure regulated by the law. In a well-ordered State the law should, as far as may be, be in accordance with that which is intrinsically just and right, but no human laws can cover every case. In proportion as the law is just and right and far-reaching, so as to cover as many cases as possible, in the same proportion does the temptation arise to substitute law for morality; to think that one may go to the full tether of what the law allows. I do not think that this mode of viewing the matter can be adopted without some degree of blunting of the conscience; without exalting what may be called commercial legality into the place which rightfully belongs to commercial morality.

Take another instance in which considerations of morality limit the freedom of interchange which the law allows. There are cases in which some article is consumed the moderate use of which is harmless, or it may be even beneficial, but which is capable of terrible abuse when taken in excess. The instance which will probably first occur to all of us is that of alcoholic beverages. The terrible evils arising from drink are too well known to require to be dwelt upon. So great are they that some would

even be in favour of banishing the thing altogether, except for strictly medical use. But the possibility of abuse is no valid reason for the suppression of the use, for so interfering with the liberty of the subject as to prohibit the sale. Take the case of tobacco-smoking. Injurious consequences may, and sometimes do, arise from excessive indulgence in it. In some cases in due moderation it is positively beneficial. But these cases at the two extreme ends are, I imagine, comparatively rare; the great bulk of the smoking is carried on as a harmless gratification.

In this case the evils of excess are so moderate and so rare that nobody proposes to prohibit tobacco. It is on account of the grave and far more common evils arising from alcoholic excess that the prohibition is demanded by some. But the cases it seems to me differ only in degree, not in kind, and the freedom of use which the law allows for tobacco is rightly extended to alcoholic liquors, with, however, safeguards to prevent, as far as may be, the indulgence in such beverages to excess.

But it is quite possible, without breaking the law, so to stimulate the use as really to lead to the abuse. To whatever extent any one concerned in the trade stimulates the abuse, at least if he knows that such will or will probably be the result of his measures, for the sake of improving the profits of the trade, to that extent he is chargeable with a breach of the

rules of morality though he may not bring himself within the clutches of the law.

Akin to this is another burning question, as regards which it is the morality of the state rather than the individual that is called in question. I allude to the Indian opium traffic. This is not, like the former, a thing lying under our own eyes, and information respecting some of the most important facts connected with it must be obtained as best may be from those who have direct opportunities of knowing. Of course in a question on which feelings run so strong it is desirable to seek information from different quarters.

The quantity wanted for regular medical use forms such an insignificant fraction of the quantity produced that we may disregard it altogether. Nobody proposes that the production of the small quantity required for that purpose should be prohibited. As regards the morality of the trade, a question of first importance is, Is there a legitimate employment for the drug, or is it used only or mainly for the purpose of a vicious and baneful indulgence? To constitute the employment legitimate it is not, I think, essential that its use should be positively beneficial; if its use in moderation merely affords gratification, and be not followed by injurious results, it stands in that respect on a level with the smoking of tobacco.

As regards the answer to this question, I cannot of course pretend to be an authority. I can only say that on putting together what I have heard from good authorities, it seems to me that the moderate use of it in hot countries is not injurious, perhaps rather beneficial than otherwise. We know, of course, that the use in excess is extremely injurious, and further it would seem that the liking for it is rather insidious, so that there is danger lest a person using it in moderation may be led on to use it in excess. The instances of marked excess, bad as they are, are said not to be common. On the whole the trade seems to stand very much on the same level as the trade in alcoholic beverages, both having a legitimate field, both admitting of terrible abuse. On account of the liability to abuse, it seems to me that artificial stimulation is to be deprecated, and it is highly culpable in either case to stimulate the use in excess for the sake of gain. If I may judge by a paper which has recently come into my hands, I am afraid that our authorities are hardly to be exonerated from the charge of undue stimulation; but without an impartial and searching inquiry it is not easy to get at the exact truth.

In many cases, what another person might wish that we should do to him might not be for his good, but the very reverse. In such a case it is obvious that, so far from gratifying him, we ought to refuse.

The first impulse of benevolence might lead us to do what he wished, but its exercise should be kept in check by a firm consideration of what was for his real welfare. Thus, for example, it is not judicious to give a child everything he may ask for. It goes without saying that we should refuse what would be directly injurious; but, even as regards things which are not of that character, if we give him everything he may fancy we shall probably make a spoiled child of him.

Closely akin to the question of the treatment of children is that of the bestowing of charity on the poor. Doubtless their lot is in many cases a hard one, and it is quite right that we should be ready to help them, and not merely be ready, but should carry that readiness into execution. But the mode of doing so requires consideration. Experience shows that the indiscriminate bestowing of alms merely on the ground of poverty has a tendency to demoralise a population; to take away from them habits of industry, thrift, and manly independence. It is right that aid should be forthcoming in case of sickness or accident or infirmity; but in ordinary cases it is found more expedient to help them to help themselves.

There appears to be a close connection, perhaps even an identity in kind though not in degree, between the feelings which lead us towards kind-

ness to our fellow-creatures, and avoidance of giving them pain or inflicting injury upon them, and those which prompt us to a like consideration of the lower animals, especially those domesticated animals with which we are most closely associated, such as the dog, which shows such a strange attachment to the human race, or the horse, which renders us such constant and important service. A man can hardly be guilty of wanton cruelty to the lower animals without incurring a deterioration of his moral character, and blunting his feelings of kindness even towards his fellow-men. So well understood is it that this is opposed to morality, that though the moral law written upon the heart goes far beyond any human laws which it is practically possible to enact, a man by cruelty to animals may even bring himself within the grasp of the law of the land. Thus the cruel sport of cock-fighting is prohibited, and a man may incur punishment at the hands of the law for ill-treating his horse. But, as I said, our moral duties are not to be measured by the coarse standard of the law; there are many things which we are bound to do, or abstain from doing, as regards which the law of the land would not touch us. We may lawfully inflict pain on animals, for our own advantage, as in the destruction of vermin or the slaughtering of animals for food, but we should avoid needless cruelty in doing so. The great benefits

which may result to man, nay, even the increase of knowledge, pursued in the first instance for its own sake, which may result from properly conducted physiological experiments, justify in my opinion the carrying on of such experiments when necessary, even on living animals, as I mentioned in a former lecture in another connection, but do not, I think, justify their needless repetition, or the neglect of such means as are available for minimising the pain. The law, indeed, provides for this, but much must in any case be left to the conscience of the operator.

The general duty of obedience to the laws of the land is one which requires some consideration, both as to the grounds on which it rests and as to its extent.

It is obvious that man cannot live in a state of complete isolation. There must at the very least be families, but if the union were to stop there, there could be nothing of all the great industries which are to be found in a civilised community, which require the division of labour, and the co-operation of large numbers of men. For these and other reasons men have always formed themselves into communities more or less extensive; and obviously there could be no concord or orderly co-operation in a community if each man were free to do exactly what

was right in his own eyes, to do just what he liked himself irrespective of others. There must be a certain amount of surrender of the individual will to the will of the community as a whole. It is conducive to the general happiness that the will of the individual should not be more curtailed than is required for the general good. The curtailment of the individual will is the price each man pays for the advantage he derives from living in the community, and therefore it is but just that he should be content to submit to it.

I have spoken as if the foundation of the compact were the general will of the community. So it is, but then as the will of the individual should be subordinated to the general will of the community, so the latter should be subject to the intrinsic laws of justice and right in all other respects. As the law is subject to the imperfection of all that is human, this may not always be the case, and different conditions may arise according to circumstances.

First, what is commanded to be done, or abstained from, by the law of the land may be what it is already right should be done or abstained from. In this case, what the law orders had already a sanction higher than that of any human law. In this case, there can be no question as to the duty of obedience.

Secondly, the law of a country might conceivably order something that is contrary to the laws of God,

or forbid something that, according to the law of God, ought to be done. If it be plain that such is the case, the law of duty is also plain, and may be expressed by the words, "We ought to obey God rather than men." The suffering which may result in such a case from violating the law of the country is to be borne. This is the case of martyrdom, and of suffering for conscience sake, at least when the suffering, be it death or less, is inflicted in course of law, and is not the result of a mere lawless outbreak of the populace, of which I am not speaking. Of course, in such a case, it is the duty of citizens to take all lawful means of getting the law altered.

But the question remains, Who is to be the judge as to whether the law of God is violated or not by the human enactment? Now, I think the ultimate decision on which a man is to act must rest with the man himself. If he finds that the general opinion is the other way, namely, against the supposition that what he supposed contrary to the law of God really was so, that is a reason for leading him to weigh well the arguments which led him to the conclusion at which he arrived. He may even estimate as best he can the chance that the general opinion may be right and his own wrong. But if, after this, his opinion still remains steadfast, he is bound to act according to it. It may, of course, be that after all the man is

mistaken, and the more general opinion is right; the man may be sincere but fanatical. He is bound all the same to act according to his convictions, but his sincerity is a reason why those who have to administer the law should make the punishment he incurs by breaking it as light as possible.

Thirdly, and this is a very common case, the law may enact something which in itself is neither right nor wrong, but a matter of convention or of indifference. In this case, it is the part of a good citizen to surrender his own wishes so as not to disturb established order, and weaken thereby the bonds of law which hold society peacefully together. For if one man might break the law without dereliction of duty, so might another, and so might a third, and so on; and then what becomes of the law? This would tend to reduce society to a state of chaos in which every man does that which is right in his own eyes. Of course the man is at liberty to try to get the law altered in a regular way, but it is not his duty so to do if he has the opportunity, as it would be in the second class of cases.

Let me refer in illustration to a matter which is somewhat of a burning question at the present day. There has for many years been an agitation for an alteration in the law prohibiting marriage with a deceased wife's sister. I am not going to argue the question whether there ought, or ought not, to be an

alteration of the law, for my subject relates not to law making, but to law keeping or breaking.

Some persons believe that such unions are forbidden by the law of God; some believe that they are not, but only by the law of the State in those countries (such as our own) in which they *are* forbidden. With those who are of the first opinion the question is, of course, closed; the existing law in our own country ought to be maintained, and those who have contracted such unions, even in countries in which they are allowed by law, have contracted guilt in so doing. It is only in the case of persons of the second opinion that a question of rightness or wrongness can arise. And here again the field of inquiry may be narrowed; for obviously, if there be no law either of God or of the State against it, there is nothing to object to in the union—the union cannot be condemned. Hence, we may restrict the inquiry to the case of those persons who believe that there is nothing in the union which is forbidden by the law of God, but who live in a country in which it is forbidden by the law of the land. Is it lawful *in foro conscientiae* for such persons to travel to a country where the union is allowed, get married there, and then live as married in their own country? If not, in what does the wrongness consist?

In the minds of those who are of the second opinion it seems to me that the wrongness must be deemed

to consist simply in the refusal to subordinate the will of the individual to the rule of the community as expressed by the law, a proceeding calculated to introduce disorder. Such an act of insubordination is specially objectionable in the present case, because as regards the lawfulness or otherwise in the minds of the community of a possible marriage it is most desirable that everything should be perfectly clear and definite.

Those who are of the first opinion would further hold that persons who had so acted are responsible for whatever may have been amiss in the unknown steps which led up to the formation of an erroneous opinion as to a point of duty.

In drawing to an end my present course of lectures, it may not be amiss to say a few words as to the change which has taken, and is taking, place in respect to the relations between science and religion. This change has reference to men's views both as to natural theology and revealed (or at least what is supposed to be revealed) religion, and in an indirect manner as to the relative provinces of the two latter.

There was a time, within the lifetime of several of us, when a man was almost thought to be an infidel if he questioned the literal interpretation of the six days of Genesis. But the evidence which geology brings to bear on the proposition that the present

condition of our earth as to its various strata, etc., came about gradually, through the operation of natural causes during many ages, from a previous condition that was very different—this evidence, I say, was so overwhelming that it gradually won for itself almost universal acceptance, and very few nowadays regard the acceptance of a freer interpretation as in any way opposed to religion, or even as inconsistent with a belief in revelation. The controversies which took place on that subject may now be looked on as a thing of the past.

Again, to go a little farther back, there was a time when the adoption of the nebular hypothesis of Laplace was looked on with suspicion, as indicating at least a tendency towards atheism. But now, the discovery of the gaseous nature of the nebulæ, or at least of the matter belonging to them from which the light comes, the scrutiny of the stars and heavenly bodies generally by means of the telescope and spectroscope, and the comparison of the results obtained with information derived from experiments which can be made in the laboratory, seem to indicate a sort of relationship, combined with differences, among the various stars, etc., a sort of order of sequence, which lead us strongly to regard the stars as formed by an evolutionary process from some anterior condition of matter. This, however, merely indicates that the regular operation of ordinary natural causes, such as

we see at work around us and can study, may have extended backwards far beyond what at first sight we might have been disposed to imagine.

I need not repeat what I have already said in a former lecture, that, however far backwards we may trace the sequence of cause and effect, we are at last brought up, and do not see our way to go any farther. We still require a cause of the cause. And if there should seem to be no indication of the existence of such a further link in the chain of causation, of the nature of those which we have been investigating, we have no right to *assume* that such a link exists, even though it may be probable that it may; to assume that, we may not simply have to refer our furthest step to the First Cause of all.

But there is all the difference in the world between referring an observed phenomenon to an evolutionary process when there seems to be some indication that it came about in some such way, and in spite of the absence of any such indication, refusing to refer it directly, or even hypothetically, to a creative act.

Bearing this distinction in mind, let us now consider another phenomenon. Besides the upheavals, the eruptions, the deposition of strata, etc., which geology reveals to us as having taken place in bygone ages, fossil remains indicate the existence of living things, vegetable and animal, in past ages.

Forms of life seem to have come and gone as time rolled on. Are we, or are we not, to refer this to a process of evolution; and if we are, to what extent may we suppose it to have operated, and dispense with anything else?

These are questions which are seriously entertained at the present day. Darwin's famous work, the *Origin of Species*, has caused them to come prominently forward, in men's minds at any rate if not in their open discussions. Few, I suppose, would go so far as to refuse to admit the possibility of such a permanent, or at least sub-permanent, modification of a form of plant or animal that the original and the modified forms, if we knew nothing of their history, would naturally be regarded as distinct species. Few, I suppose, on the other hand, having in view the results of recent carefully conducted experiments, would attribute the origin of life upon the earth to an evolutionary process taking place on lifeless matter; and, perhaps, not many would suppose that *all* the forms of living things, widely different as they are, were derived from one common germ. But between these extreme limits there is a wide margin, in regard to what we may suppose to have taken place, for a greater or smaller application of evolution. It is not so much the extent to which as the *animus* with which we adopt it that bears on religious ideas. It may very well be that in the

ardour of discovering that some phenomena are fairly referable to evolution which previously had been supposed to lie altogether outside it, a man is led away by his enthusiasm to think that that will do everything for him, that he wants no more. In such a frame of mind, it may very well be that he is disposed to reject the supernatural altogether; to extract, for instance, from Christianity the high morality which belongs to it, and then think that that is all he has got to do with it. In this indirect way even natural religion is liable to be affected, by claiming for it a province which lies outside it. Natural religion may point out to us our duty, and in doing so may receive great assistance from the high moral teaching of Christianity. But it is one thing to know our duty, and another thing to do it; and if we are led to think that in order to do our duty as best may be we need no more than what natural religion, if fully cultivated, can supply us with, then in the opinion of those who hold Christianity to be true we are thereby deprived of the greatest assistance that we could have towards enabling us to do what we ought.

As I have said, the influence of the adoption of the theory of evolution on our religious beliefs depends on the *animus* with which it is adopted. Its influence in this respect on two different men might be very different, even though it were applied

to the very same phenomena. For the scientific knowledge of one of the men might be such as to show him that the phenomena were very probably referable to an evolutionary process, whereas the other might know absolutely nothing indicating even obscurely any evolutionary origin.

The adoption of an extreme form of the evolutionary theory might be adverse to some of the fundamental principles of Natural Theology in a more direct way, namely, by tending to weaken the cogency of the argument from design, an argument which seems to appeal so strongly to common-sense. But I merely mention this here for the sake of completeness; I will not dwell further upon it, having done so in a former lecture.

There is a conflict of opinion and a restlessness of men's minds at the present day about these subjects. But we may confidently hope that if men will in a straightforward manner seek after what is true, and that in a humble spirit, without arrogating to themselves the monopoly of truth and contemning others whose opinions may be different, the present conflict of opinion will in time settle down as did those former ones to which I have already alluded.

In concluding this course of lectures, I may perhaps be permitted to make a personal explanation by way of apology for the very imperfect way in which

I feel that I have discharged the duties of the office.

I knew nothing of it till I was informed that the Senatus of the University had done me the honour of electing me Gifford Lecturer, subject, of course, to my acceptance of the office. I may, I suppose, take their act as some indication of what was expected of me. What I have previously written has been mainly scientific memoirs; as to theology, I have merely written a few short articles, and in those, though I did not scruple to employ natural reason, I have gone on the basis of accepting a supernatural revelation, more especially on that of accepting the resurrection of Jesus of Nazareth as a supernatural historical fact. I have never written on, and I may add I have never specially studied, natural theology or moral philosophy. My age is now too far advanced to make it desirable that I should set about the study of a, to me, new science, and indeed the attempt to do so would be hardly compatible with my other duties. Perhaps I may not be altogether wrong if I assume that the Patrons contemplated that I should draw the subject of my lectures in great measure from the thoughts of my own mind in the subjects to which I had given more especial attention, in so far as those thoughts fell in with the main object of Lord Gifford's Foundation. This is what I have attempted, and the result is